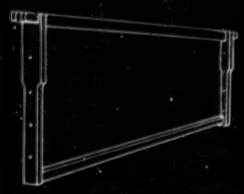
AMERICAN BEE JOURNAL

AUGUST
Volume 93, No. 8



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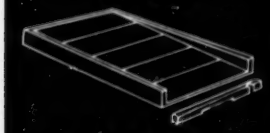

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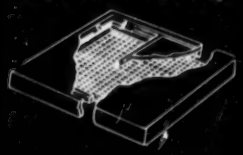

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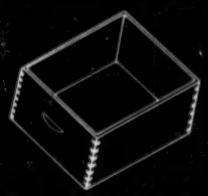

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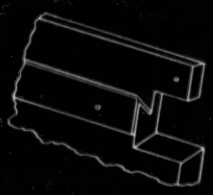

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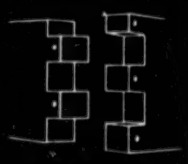

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B. A. Howes, Iowa State College, W. E. Dunham, University of Ohio, R. J. Walstrom and Martin Polhemus, Iowa State College, on a visit to the Test Garden, Atlantic, Iowa, during the time when Frank C. Pellett (now deceased) was trying plants for pollen and honey from various parts of the world.

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Vol. 93, No. 8 August, 1953

THE AMERICAN BEE JOURNAL
HAMILTON, ILLINOIS

Editor — G. H. Cale
Associate Editors — M. G. Dadant, Roy A. Grout
Managing Editor — Adelaide Fraser

Published monthly at Hamilton, Illinois. Entered as second-class matter at the Post Office, Hamilton, Illinois. In the United States, Canada and Mexico, $2.00 a year; two years $3.50; three years $5.00. Foreign $2.50 a year; two years $4.50; three years $6.50. Subscription stopped at expiration date printed on wrapper. Available on microfilm at moderate prices by writing to University Microfilms, Ann Arbor, Michigan.

A hedge row of Cotoneaster divaricata in the Test Gardens. This is one of the varieties of Cotoneaster which is a really good bee plant. It makes a nice hedge and is prized for the numerous berries which turn a bright red color in the fall. The fruits are attractive to many birds and so it is useful in wildlife conservation.

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OUR COVER PICTURE

Leon F. Bowman, Hilliards, Ohio, photographed his daughter, wistfully gazing at a dish of comb honey, with all the means of enjoyment before her, butter, bread, crackers, knife. Our guess is that she was busily chewing right after the picture was taken. Bowman is a school teacher, with a few colonies of bees. But, he says, although he has sold colonies, given them away and what not, he still keeps slowly increasing.

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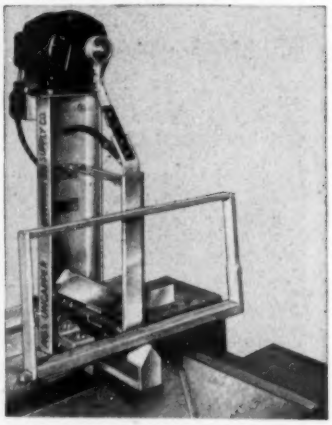

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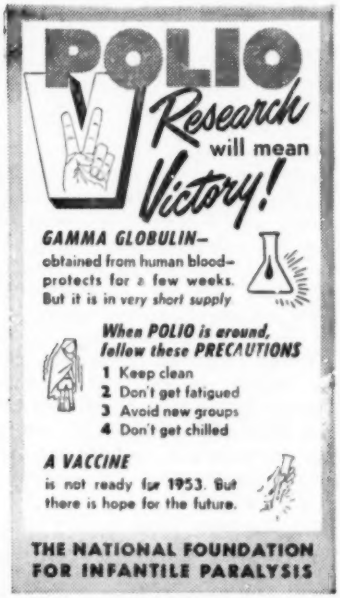

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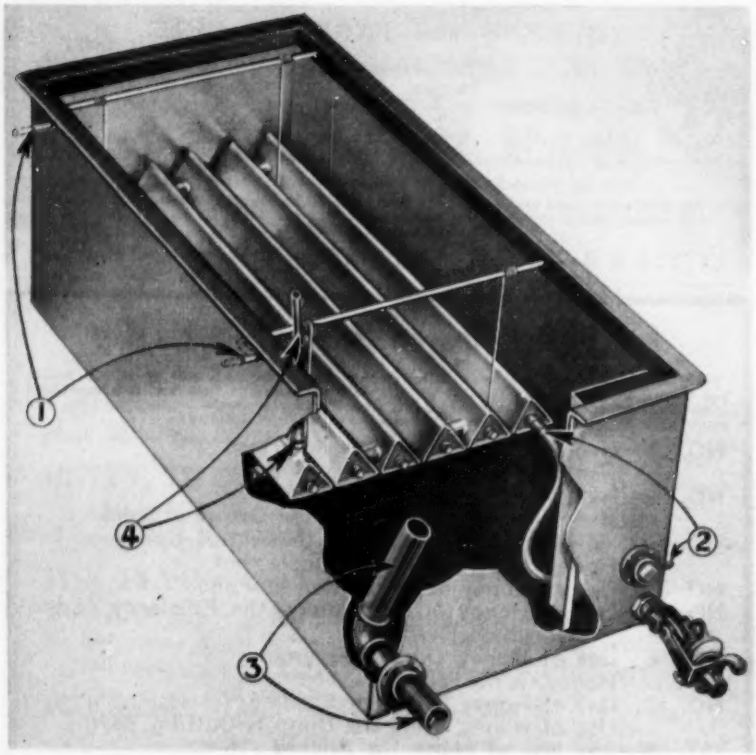

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Capping Melters

by A. G. Woodman

THE articles by Dr. W. E. Dunham in the October and November 1952 issues of ABJ brought to mind the first efforts made to provide a grid melter for cappings which had been whirled dry after using a hand knife, a heated vibrating power knife or the new Keller uncapper in use at the time. The Keller uncapper was not unlike the present Bogenschutz uncapper in that the combs were run down between two revolving cylinders with cotter pin cutters that removed cappings from both sides at the same time. They were drained and whirled as dry as possible and disposed of at a later time.

It was assumed by many of the users of these uncapping and whirl-dry tactics that these dry cappings were as free of honey as could be expected and the mass could then be melted up without further attention to honey saving.

Our experience with particular attention to extracting methods, demurred from this premise and we evolved a melter not unlike the Ohio cappings melter described by Dr. Dunham. The Woodman melter was a top feeding cappings melter made of triangular 3x3x3 cast aluminum melter units set in a grid formation. It had a baffle plate, and an adjustable wax overflow to take wax off the top at any level. The melter grid was equipped with cables and roller lifters so it could be lifted up out of the liquid mass at the bottom of the tank.

David Running, at the time, was an extensive Michigan honey producer. He was interested in the Woodman top feeding capping melter and the Keller uncapper, which were delivered to him quite late in the season. In a test, he ran whirled dry cappings from 120,000 pounds of honey through the Woodman melter and made the following report:

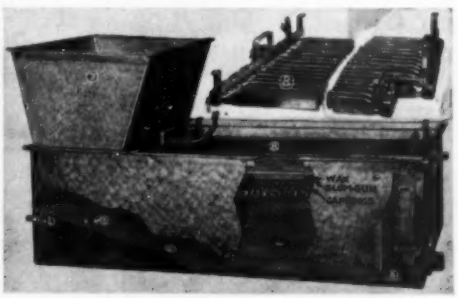
Honey extracted	120,000 lbs.
Cappings melter honey	3,120 lbs.
Free wax run off	1,285 lbs.
Wax later from slumgum	590 lbs.
Dirt from slumgum	615 lbs.

Drying cappings by whirling is a time-consuming operation. Running formerly placed whirled cappings in barrels and turned live steam on them. He estimated that during ten years he had produced 700 tons of honey and had lost approximately 35,000 pounds of capping honey.

It was at about this time that W. T. Brand exhibited his Brand capping melter at the San Antonio National Convention in 1934. Woodman immediately saw the superiority of the Brand machine for cappings straight from the cappings knife or machine.

Mr. Dunham says of the Ohio melter in his November article, that "As the dried cappings melt on the steam grill into a fluid stage, the various constituents; namely honey, slumgum and wax seek their levels of segregation, the slumgum occupying the middle level and the wax, which is lightest, the top level." We question this statement. With any top feeding melter, the slumgum, dirt, and stain are carried down WITH the honey. The only way slumgum can be **held** at the middle level, is with a **floor** of unmelted cappings, with a machine with UNDER THE MELTER GRID FEEDING.

This is exactly the feature under which the Brand melter was originated and patented and which it still retains in the much refined Brand melter of today. And this is the reason why the Brand melter of today is so universally used. Where



Brand capping melter—most efficient used today.

properly used there will result an immediate disposal of cappings and resultant honey and wax with imperceptible damage to color or flavor.

It is true that there are all degrees of efficiency in the operation of the Brand melter, depending on the individual and the conditions under which he is working. Many make a success of it from the first, while others never seem to be able to grasp the principle of its workings.

The Brand works best under crowded conditions. In other words, best results are obtained when there are enough cappings to keep the melter at work all day, in continuous operation. Operation is more difficult when the process of uncapping is "jumpy" or is done only a few hours at a time. The best operators greatly appreciate a cleanup of the work at the end of each day, with only slumgum to dispose of later.

While top feeding capping melters, like the Ohio and the former Woodman melters, may have their advantages with cappings which have been drained or have been minutely broken up and then whirled dry, as when coming off the old Keller, or present Bogenschutz uncappers, these top melters cannot from their very construction give a top grade of honey, as a result of their operation; while the Brand melter, will and does if properly operated, do just exactly that, and it has the added advantage that it disposes of the cappings without recourse to drying or whirling.

Michigan

Painless Requeening

by A. John Hinches

SURE, I'm no expert like the other men who write in this journal. Does that mean that I couldn't have at least one idea worth telling you about? The stimulus to my activity is the Spotlight on "Requeening," in the June issue. There, some authorities on the subject discussed some valuable points. I wish that I had queens in my colonies with the characteristics that they describe. Pardon me, if I try to put in my two cents' worth on the matter.

Before I go any further I ought to say that the method I wish to explain is not my own. I learned it from our state inspector, Mr. Paul Holcomb, who seems to be voicing the minds of most small beekeepers in this state when he advocates it. This is requeening without any dequeening, without any great fuss, and without a loss of time.

Briefly this is it: In autumn, after the cold weather has forced the queens to stop laying, a new young queen in a nuc is put on top of the old hive with a newspaper to separate them. If you come back in a week or two, you will find the colony and nuc will have united. In the spring you will see the new queen working hard and effectively.

Theory is good to back up practice, so let me quote an authority to lend some weight to my opinion. Mr. G. H. Cale, in the 1949 edition of "The Hive and the Honey Bee," page 237, says:

"The proper method of introducing queens is a much discussed subject. There are many methods used, most of them working under some conditions and failing under others. The failures are likely due to an incorrect understanding of the basis for successful introduction. The theory of colony balance in relation to queen introduction was defined first by Sechrist. According to this theory, the queen to be introduced must be in about the same condition with respect to egg laying as the queen which is to be removed. This appears to be the requirement for ready acceptance of new queens, and when this balance is provided, introduction is easy by almost any method. If the balance between the two queens is not equal, introduction will usually fail."

It is not so easy to get a queen in a nuc to lay at the same rate as one in a large colony. However, if both of them had stopped laying, then there would be a perfect balance. That is why I advocate introduction in the late fall when all queens have stopped laying and there are still enough warm hours in the day to get the bees moving to unite. What is all this talk about light laying in the fall flows before the first frost? It seems to me that a good queen will be laying many eggs at that time so there will be a good colony of young bees for the winter.

Let's look at some of the advantages of this system. You could have the queens sent to you a few weeks before the frost, or else you have plenty of time in the month of August or September to raise your own queens. Incidentally queens are cheaper in the autumn. If you do not depend on the fall flow for your major harvest, there are plenty of bees to use for the nucs. Start your queens in the nucs and see how good they are. What's the use of putting second rate queens in a hive? When all your honey is in, and you have a few weeks before fixing things for winter, then put your nucs on the hives that need new queens. There are no bees flying around to slow the work, no heavy hives to lift, and at least a ten to one chance of success. Next spring, there is a young queen working like mad to fill your hives with honey.

Just in case you have not tried to keep nucs at the end of the year, I might add one word of advice. See to it that there are plenty of bees and honey in the nucs, for the cold weather means that queens need warmth; and the dearth of honey at frost time, means danger of robbing.

When I think of those men with hundreds or thousands of colonies, and me with my two dozen, I feel like a mouse talking to a herd of lions. No doubt, they will tear me and my methods to pieces. But what about all the other little mice in the land? Will they lend me an ear, and give my suggestion a trial? I hope so, I think it's good. We little mice ought to produce so much honey that the lions will crawl into their lairs for shame.

New Jersey

A Colour Chart of Pollen Loads

Mrs. Hodges has brought into play her artistic gifts in the reproduction in water colour of the colour of pollen loads brought in by bees. An examination of fresh pollen loads from over a hundred plant species in southern England has revealed that the colour in nearly all species varies either because of the condition of the pollen when gathered or because of the amount and nature of the sugar solution used by the bee in packing the load.

(International Congress. Reported by Dr. J. N. Tennent, Scotland).

Mrs. Dorothy Hodges, England

Special Problems in Pollination

by Milton H. Stricker

THE establishment of a pollination company brings about some special problems.

First of all, the constant moving of colonies is hard on equipment. The pollinculturist has to be a little more exacting in keeping his hives bee-tight and in well ordered repair. Unless it is a one-man outfit and he is a very careful manipulator, his help will break and destroy some equipment. Probably he will find himself building or buying new equipment more often than the man who keeps his business in one spot.

Most pollinculturists in this area eliminate some equipment that they feel is not truckworthy and use this in honey gathering yards where the equipment will not be moved. Wherever there are disadvantages, you will find a few advantages as in this wear and tear on equipment. Bottom boards perhaps last longer for the man who moves his bees than for those left on permanent locations. Lifting and moving allows the bottom boards to dry out somewhat and rotting is not as prevalent. Bottom boards are always checked to prohibit leaking bees which can cause trouble in pollination movements. However, colonies are often moved into areas, and this is a special problem with us, where termites are bad and we have found since a lot of our pollination business is in this area, that new bottom boards should be dipped in creosote, allowed to weather a few months and then put into service. After five or six years, they can be redipped or painted, whichever you prefer, but we find the creosote is well worth while in combating termites.

Ants are sometimes a problem, but the constant movement of our bees never allows the ant population to build up enough to demoralize a colony. We do have one particular area where ants are a problem and since the pollination chore is a long one, we place a handful of paradichlorobenzene crystals under each colony as we set it on location. It takes a little time but is long lasting, does not affect the bees and keeps the colony free of ants until we move them.

Possibly the biggest problem in moving bees for pollination is contracting disease. American foulbrood is occasionally a problem since it is hard to determine if other bees are in the area and whether they are clean or not before we move ours into that area. We usually keep some sort of record when we move the colonies out of particular orchards where they are placed and in this way when we inspect colonies and find American foulbrood, we know the area where the bees found the contagion, and can investigate them more thoroughly in our spare time. The bee inspector is always quite cooperative when these areas are mentioned. We find burning is the only sure method of eliminating AFB. We have tried dozens of other methods but they all entail more work and more grief than a good hot fire. We use a pressure kerosene torch to set the mass on fire after digging a hole. Old pieces of equipment are burned as well as the bees and combs. Newer and more rugged pieces are scorched with the torch and carried back to the shop and boiled in lye before reusing. Perhaps our AFB measures are more astringent than necessary, but we know how fast this disease can spread and how it could decimate an apiary on which we depended for our living.

European foulbrood is much harder to control. We have had to go into the breeding of our own special stock to withstand the ravages of this disease in South Jersey areas in which we move. We have read every bit of available literature. We have made every known experiment on controlling it. We find nothing but our own resistant stock that does the trick and this is not always foolproof. Colonies are moved into this area where EFB is prevalent and moved away as soon as their pollination job is finished and when they are moved away, we try to move them into northwest Jersey where European is practically unknown. Here any smattering of the disease will be cleared up mysteriously.

If colonies have to stay in this particular area to do two pollination chores, for instance, blueberry pollination and then left for cranberry pollination, which would be a period of almost six months, we make sure they are requeened with our own stock and we check them often for the disease. If we find it, we remove the colony and replace it with another. If the disease is allowed to get too far ahead of us, even our own resistant stock seems unable to clear it up. It might be well to mention that resistant stock is not the whole answer in EFB control. If a colony is too far gone, nothing seems able to save it, so if our colonies are picked up when they are at the point of no return, we treat them as AFB colonies, burning them and sterilizing the equipment.

Other diseases such as Nosema, sac or paralysis seem to give us little trouble. A few years ago our bees were affected by something that New Jersey beekeepers labeled as the "mysterious malady" and though it cleared up, it left us with a winter loss that had to be corrected. It has not recurred, so we will just have to approach that special problem when once again we find it and we all hope we don't find it.

Another problem, although it is purely mechanical, comes to mind and that is getting stuck in orchards. It is a saying in New Jersey that if you have a dry time at the beginning of apple bloom, you are sure to have a wet time removing your bees and vice versa. Whoever first invented this saying surely was right and as your truck goes sloughing through the mud, its front or rear wheels settling down with a delating scrunch, you know you are really in trouble.

Here, a four-wheel drive truck or jeep might be handy but we do not care for these two since the four-wheel drive truck is high and large and unwieldy to steer and the jeep carries too little unless you tow a trailer.

We have tried the motor driven winch which works remarkably well but it does occupy too much space so now we favor a hand-powered winch on the front bumper which takes little space and with stout cable and your own arrangements of pulleys will remove a stuck truck by your own muscle and not too much muscle required at that. Of course, rather than use this if the orchard is one bad slough hole, we hire a tractor or some such vehicle to remove the bees.

Also, in these times we move the bees in daylight. It is much easier to drive and loss of the field bees can be compensated by feeding and allowing the colony to recuperate in an area where there is a good honeyflow. Losing the field force in a colony, although many hold up their hands in horror at such procedure, is a very little thing and remedied more quickly and painlessly than you would think before trying it.

You will probably get other special problems, some small and some large, in your struggles to build up a pollination business. Here your own fitness for the business you have chosen will lead you to do the right thing at the right time. In these emergencies, remember, your own opinion may not be the best but after all, it is your own.

New Jersey

Bees - - and Crowds of People

by Rev. Eugene J. Crawford

A pool in the rock garden furnishes water for the bees. The sign on the gate warns, "Bee Hives—Do not enter."

AN ideal apiary is one which is secluded but ideal conditions are not always at hand. On the ample acreage surrounding the Queen of the Rosary Convent, Amityville, Long Island, New York, is a small apiary of a dozen hives kept chiefly to pollinize the orchard, with the honey as a welcome by-product. On the grounds are a large convent, a girls' high school, and a residence for elderly men and women. There are many visiting relatives and friends on three days each month. They roam the grounds freely and their knowledge of bees is almost zero. Many fear bees intensely.

In fifteen years of beekeeping here, only one authenticated bee sting has been reported. Still, the little apiary is not in a secluded corner. The necessity of having a storeroom and workshop nearby, made it imperative to have the bees near the convent building.

In order to keep the bees quiet and to avoid stings, a rock garden facing a lawn to the southeast, was fenced with a decorative fence. The apiary was placed in front of the rock garden and also fenced in with a four-foot fence. Rambling rose bushes were planted along the fence in order to force the bees upward in flight as they left the hives. Bushes were scattered throughout the apiary and the hives were placed alongside the bushes so that the bees would not drift and rob. Pine trees formed a screen at the northwestern rear of the hives, cutting down the wintry winds. The bushes make the hives warm in summer but the bees don't complain, and in winter populous hives survive without packing. Neat warning signs are placed on the fence; and signs, asking people not to walk in front of the hives, are placed in front of the apiary.

Hives are inspected at quiet times only and left alone on visiting days. The first Sunday in June is a popular visiting day with the people because the grounds are at their best. It is also a popular swarming day for the bees. Swarms have occurred right in the midst of throngs of people. If the swarm alights on a low bush, it has been found best to snip off the branch to which the swarm is clinging, deposit it gently in a box and cover it with a mosquito net. The swarm remains quiet until evening when the visitors have departed and it can be hived. If the swarm alights on a tree, it is left alone until after visiting hours. Sometimes the surrounding space is blocked off with a clothesline.

Backyard apiarists sometimes feel the wrath of neighbors complaining that bees are hanging around kitchen windows. They may be after water. At the convent the water problem is solved by small fountains here and there on the grounds. Nothing can be done when an inquisitive bee hovers over a child sticky with candy. One hopes for the best.

Nothing can be made boyproof. One time two youths stuck a sapling through the fence and tipped over a hive. They fled, pursued by angry bees. A fully armored beekeeper had to wade into the mess and gradually restore order.

New York

Bee and Queen Prices in France

The National Association of bee breeders in France has recommended to its members prices on queens at $3.30 in May, $2.80 in June and $2.24 in July. Packages are priced at $10.00 each, no sizes given.

The Tie That Binds . . .

Three scientists were reflecting on the ways of the world. Said one, "Have you ever thought what holds the world together? Truly it must be twine. Merchandise, even clothes are held together by rope or thread. Without it we would be sadly disorganized." The other two reflected and one said, "My friend, what you say is true, only look at the miles of copper strands across the horizon. Indeed, the world is held together by wire. All of our communications depend on thousands of strands of wire."

Finally the third said, with great wisdom, "With great respect for your opinions, I submit the world is held together by bands of steel. Our great buildings, ships, planes, automobiles, railway systems—all of the things that contribute so much to man depend on steel. Surely the bindings make the world."

Now, as they were pondering the problem, they happened to be close to a thicket where a beekeeper was about his labors. The words of the scientists had drifted to him through the air and he called to them and said, "Good friends, observe the labors of these tiny insects that visit flowers every day and return to the hive with the food of life. In return for the nectar and pollen given by the flowers, the bees have in their act assured the perpetuation of the plants which they have caressed, for those plants then develop seed which ripens and falls to the bountiful earth. More and more plants grow and develop and feed man and animals and the earth is replenished because of this mutual affection of insect for plant and plant for insect. Surely, gentlemen, this shows clearly the tie that binds—God's love."

Fred C. Blummer
Arnold, Nebraska

California Weather . . .

Heavy rains in California do not necessarily mean improvement of honey production, but the right weather at the right time does. The weather, not lack of moisture, raised the dickens with a million and a quarter acres of cotton. It takes hot weather for cotton and alfalfa to yield. Late cotton will yield a crop if the temperature is around a hundred with no adverse winds. The same with alfalfa.

My 53 years in California beekeeping lead me to believe that drought has less to do with a crop than the right kind of weather at nectar time. A cool summer up to the middle of September will always be reflected in a small crop of honey.

L. E. Orr, Coalinga, Calif.

Otto Schulz . . .

Otto Schulz, native and lifelong resident of San Benito County, California, passed away at Hollister, in mid June, age 74. Born there in 1879, he lived on the same Union district ranch since 1907 operating an orchard and an apiary. News of his loss came from Mrs. Schulz. He also left a daughter and three grandsons.

Which Hive Cast the Swarm? . . .

It is often desirable to know which hive cast a swarm. This information sometimes may be gained by opening every hive. Such a procedure, however, would be too expensive of time and effort. Fortunately there is a plan which has proved helpful where the swarm is within reach.

Into a cup place less than a half teaspoonful of flour and about twenty-five bees from the swarm. Cover and shake the cup to thoroughly flour the bees, then toss them into the air. Watch the hives and the hive in front of which are the **most** floured bees is the one which cast the swarm. It is important to note where are the **most** bees since when a swarm issues others than those from the swarming hive join in the fun. It is something like a circus parade—not all the people in the parade are in the circus.

Care must be used not to get too much flour on the bees so they will not fly readily. Apparently when they are floured they lose the swarming urge and go back home.

If the swarm is not sufficiently cooperative as to cluster within reach, even with a pole, only the hard way of examining every hive is left to the bothered beekeeper.

Elmer G. Carr, New Jersey

Crimson Clover . . .

The harvest of crimson clover seed in 1953 is to be nearly equal to 1952. Tennessee and Alabama only, of the southern states, show larger seed amounts harvested than in 1952, largely due to favorable weather in the seed harvesting season. While as large per acre averages as 600 pounds were obtained, the overall average is estimated at 215 pounds, according to the U. S. Department of Agriculture.

Imports for the 11-month period ending May 31, 1953 were over eight million pounds compared to 13 million and 14 million pounds in 1951 and 1952. Georgia ranks first in production with 40 million pounds, with Tennessee and Alabama next with 40 million pounds each.

Evergreen Sweet Clover . . .

Originated by the Ohio Agricultural Experiment Station. Well adapted to the Corn Belt, and eastern Great Plains. It blooms over a long period and sets seed freely, although the seed shatters easily because of the rank growth of the plant. Carl Killion, in Illinois, has some of his bees near four large fields of Evergreen and reports it a free yielder, with tall growth and late yielding bloom.

Tontz Sells Honey . . .

The Tontz Honey Farm is located on Route 71 at Elsinore, Calif. A descriptive folder of their wares is at hand. Besides jam, jellies and rustic mementos, they feature several packs of honey; orange, mountain sage, wildflower, star thistle, Wyoming clover, desert mesquite, and avocado. A "Honeybunch Gift Pack" offers a 4-jar assortment for $1.75.

August SPOTLIGHT

European Foulbrood

European Foulbrood used to be a relatively mild and easily controlled brood disease. It was found more often in the brood of colonies of black bees or bees of mixed stock. Requeening with queens of suitable Italian lines and, if necessary, the removal of the worst combs, soon brought the disease under control. Suddenly, in the last few years, this no longer helps. We are suddenly confronted with a severe and destructive phase of this disease. The following contributions place before you the attempts which have been made to establish a new control.

The Control of European Foulbrood

by Dr. C. A. Jamieson

Chief, Apiculture Division
Ottawa, Canada

EUROPEAN foulbrood, which until recent years was considered to be of only minor importance on this continent, seems to have been rejuvenated and has become a menace to beekeeping in several areas. So far, this disease in its more virulent form, has been confined to certain districts of the Prairie Provinces in Canada. In the Carrot River Valley of northern Saskatchewan, in 1950, approximately two thousand colonies were a complete loss as a result of a heavy infection. The loss was spread among several beekeepers most of whom operated package colonies. The disease appeared to be much less severe in 1951 and again last year.

In Alberta, the disease was confined to one small area until this year when it seems to have spread elsewhere in the province. The first report of a serious outbreak of European foulbrood in Manitoba just reached this office at the time of writing.

Cause of Disease

The earliest studies on European foulbrood seemed to indicate that it was caused by **Bacillus alvei** but it was later demonstrated by several investigators that this organism is not the primary cause but presumably a secondary putrefactive invader. In recently dead and sick larvae an organism named **Bacillus pluton** was found by White.[1] It has been suggested by Lochhead[2] and Burnside[3] that possibly **B. alvei** and **B. pluton** may be different life phase forms of the same organism. Tarr[4] was successful in reproducing the disease by inoculating larvae with a suspension of **B. pluton** from macerated stomachs of infected larvae and rejects the theory of pleomorphism.

The fact remains, however, that until **B. pluton** can be cultured in the laboratory and the disease reproduced in a healthy colony with a pure culture, the mystery as to the exact cause of the disease will not be solved.

Control with Antibiotics

No control studies have been undertaken at Ottawa on this brood disease but Katznelson **et al.** tested several antibiotics in a badly infected apiary of a commercial beekeeper at Sylvania, Saskatchewan, in 1951. They used streptomycin, chloromycetin, aureomycin and terramycin both by feeding the materials in sirup and by spraying infected combs. Chloromycetin and terramycin appeared to prevent the development of the disease when fed to colonies or when sprayed on clean comb in infected hives. Aureomycin was less effective but chloromycetin appeared to increase the disease. Further studies on these and

other materials, which may have some practical significance in the control of this disease, will be tested at Ottawa this year.

Management of Infected Colonies

Observations on infected colonies show that the intensity of the disease gradually reduces during the honeyflow unless the colonies are so badly weakened that the field force is negligible. Requeening of colonies with a good Italian strain, which has been a standard recommendation in the control of this disease, does not seem to be effective. It seems also to thrive in strong rather than weak colonies. One practice recommended by M. J. H. Arnott, provincial apiarist of Saskatchewan, is to dequeen colonies some three weeks before the bees are gassed (prior to removing the crop) to allow the brood to hatch. This procedure appeared to reduce the severity of the disease in the following year.

It is of interest to theorize as to some possible explanations for the increase in European foulbrood. At the beginning of this article I referred to a "more virulent" form of this disease. This is a distinct possibility, since it is an accepted fact that organisms are not static and must develop more resistant strains or become extinct.

Another possibility is that in the breeding of AFB resistant strains, some of the natural resistance of the Italian strains to European has been lost. Certain AFB resistant strains have been reported to be quite susceptible to European foulbrood.

It is unlikely that bees will ever be free from the menace of disease and the problem resolves itself to finding ways and means whereby losses to the industry can be reduced to a minimum.

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The Use of Antibiotics to help Control European Foulbrood

by Joseph O. Moffett

Colorado Agricultural and Mechanical College

EUROPEAN foulbrood has become an increasingly serious problem to beekeepers in many areas of Colorado during the last decade. The disease caused little trouble until the early 1940's. Then there was a severe outbreak in the San Luis Valley. In the last few years EFB has occurred in virtually every section of the state.

Older Controls Failed. The older methods of control proved to be of little value in stopping the disease. Strong colonies were no guarantee against it. Apiaries containing colonies averaging 14 frames of brood have had 95% of the colonies break down with EFB. Strong colonies are often reduced to a handful of bees in a few weeks after having contracted European foulbrood. Colonies located in certain apiaries in the San Luis Valley break out with EFB every year. When these colonies are moved out, and clean colonies moved in, the clean colonies will have EFB the next spring.

Italians, Hybrids Not Resistant. Although there are probably important differences between the susceptibility of different races and strains of bees to European foulbrood, no strain yet tried in Colorado has proved to be immune to European foulbrood. The Italian race available from commercial queen breeders seems to possess little of the resistance to the disease that Italians were reported to have 50 years ago. The hybrid bees which have been bred with such painstaking care, have been more susceptible to EFB than the standard races in the past. However, the breeders of hybrid bees are aware of this weakness. They are working hard to correct it. In the near future the bred hybrid bees may play a big part in reducing the losses due to European foulbrood.

Antibiotics Tested Against EFB. Due to the heavy losses of some Colorado beekeepers from EFB, and the inability to handle it by older methods, the Colorado Agriculture Experiment Station began to test the effect of different antibiotics on the disease in 1950. These early tests showed the value of streptomycin in cleaning up most cases of the disease. Beekeepers in the La Jara area of Colorado have been using streptomycin, and its dihydro form, with generally good success since July 1950, to help combat European foulbrood.

In 1952 and 1953 these beekeepers fed streptomycin as a preventive against EFB with very good results. The colonies are fed streptomycin in sugar sirup before the disease normally breaks out in the region.

Use of Streptomycin. In controlling the disease after a colony has contracted it, one-fifth of a gram of streptomycin or dihydrostreptomycin should be placed in a five-pound jar of sugar sirup and fed to the diseased colony. This sirup should be fed to the colony at weekly intervals until the colony is free of EFB. Usually two feedings will cure a colony. When the disease is severe enough in an area to warrant preventive feedings, it should be done prior to the time the disease normally occurs.

Success in controlling EFB has also been reported by beekeepers sprinkling streptomycin in sirup over the colony. Several Colorado beekeepers mixed powdered sugar with streptomycin, then dusted this mixture in the colony to control EFB. The sugar acts as a carrier for the streptomycin. Streptomycin is not effective against American foulbrood.

Terramycin Controls EFB. Many different investigators have found that terramycin will control European foulbrood when it is fed to diseased colonies. It is also effective against American foulbrood. It cannot compete with sulfathiazole in price or stability at the present time in preventive feeding to control American foulbrood alone. However, it should prove of great value when both European foulbrood and American foulbrood are a problem.

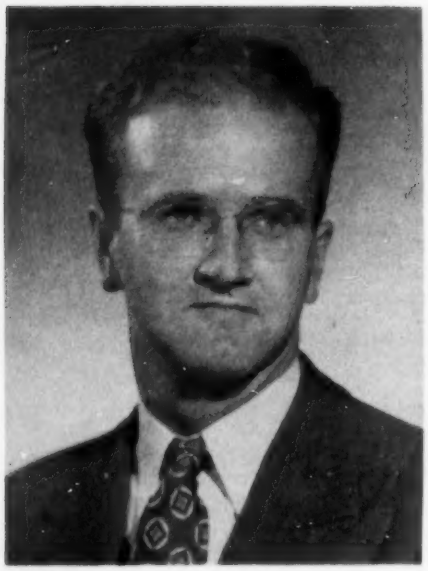
Terracon 25. An unrefined form of Terramycin, Terracon 25, is being extensively tested on European foulbrood colonies. This material contains 25 grams of terramycin per pound. I am sure most of the "Spotlight" writers have more information on the value of Terracon 25 in combating EFB than I have. Our tests this year indicate it will effectively control EFB. We have been using three grams per five-pound jar of sirup, or 36 grams per sixty pound can of feed. I have no exact information on the best dosage to use. The commercial equivalent of Terracon 25 is Terramycin Poultry Formula containing 25 grams of terramycin per pound and manufactured by the Pfizer Company.

The close-up picture of the apiary is a yard at La Jara. Half this yard was fed streptomycin and the other half was fed plain sugar sirup for a check. The second yard is one near Monte Vista belonging to Eugene Wadleigh. It was fed Terracon 25 this year. The La Jara yard belongs to Cecil Mount of La Jara.

John Haefeli, a 3,000 colony San Luis Valley beekeeper, has had good success dusting TM-5 (a terramycin animal mix) over the frames of colonies having European foulbrood. He mixed one part powdered sugar to one part TM-5 before applying the dust. TM-5 contains five grams of terramycin per pound. It is used when adding terramycin to livestock feeds. The price per gram of terramycin in TM-5 is about one-half the price per gram of terramycin in Terramycin Poultry Formula. It can be obtained from feed mills which mix their own feeds and this dilute material certainly deserves further testing.

Summary: Materials containing either streptomycin or terramycin have been effective in controlling European foulbrood. Yet the final answer in controlling EFB should be bees that are resistant to it. The various other means of control should help reduce the ravages of EFB until bees are developed that are immune to the disease. These resistant bees may be developed next year, ten years from now, or never. But they should be our final goal.

Colorado



European Foulbrood Disease in Minnesota

by Dr. Thomas A. Gochnauer

University of Minnesota

EUROPEAN foulbrood (EFB) did not receive much attention on the part of beekeepers in Minnesota until the past year. Some beekeepers reported problems in one or two yards. In some cases, these problems were caused by dividing infected colonies or by equalizing weak and strong colonies by shifting brood or other procedures.

Treatment was begun using streptomycin or dihydrostreptomycin kindly supplied by Merck & Co., New Jersey, or Upjohn Co., of Michigan. Various sulfone drugs were given by Parke Davis & Co., Michigan. Crystalline terramycin, Terracon 180 (40 per cent terramycin) and Poultry Formula 25 (6 per cent terramycin) were supplied by Chas. Pfizer & Co., New York. Terramycin was applied to the colonies in quantities ranging from 150-300 milligrams actual terramycin per gallon, and wherever possible, the full gallon was applied. In some cases the flow interfered, and the dosage was applied as a spray or by filling into the combs. Other chemicals were applied in a similar way, but dosages for streptomycin or the sulfones were applied at a level of one-half-gram per gallon.

Most colonies responded quite well to streptomycin or terramycin. The response to the sulfones was quite variable, and these substances are not being studied during this present season. A typical yard report for 1952 showed that two colonies of average strength deteriorated on treatment with a half-gram of Diamidin (a sufone) per gallon. Two of three colonies treated with a half-gram of streptomycin showed good improvement. One colony was treated with 300 milligrams of terramycin in the form of Terracon 180, and showed good improvement. The initial infections were generally heavy, and the period of observation was three weeks. Other colonies were subsequently treated in this yard, which regained production lost the previous year as a result of infection. The loss had been up to 50 pounds of honey on the average.

Another group was treated with 150 or 300 milligrams terramycin as Terracon 180 or with 500 milligrams streptomycin in duplicate. The observation period was three weeks, ending with the beginning of the flow. No disease was apparent in any of the treated colonies, with the exception of one streptomycin-treated colony which became infected with AFB during the course of treatment. Streptomycin is ineffective in control of this disease. At the beginning of the flow, the untreated colonies began to improve, but were still showing infection at the end of the three weeks.

This was the general picture throughout the treated areas. However, one heavily infected yard, which cleared under treatment with streptomycin this last year, broke out anew this year, failing preventive treatment by the beekeeper. Evidently, a residue of disease had remained in the combs, and treatment over more than one season is definitely indicated in this case.

One method of treatment adopted by the above beekeeper consists of transferring the colony to clean equipment. The bees are driven by smoke from the top of the infected hive to a new hive placed with the bottom board level wih the top of the old hive. In this manner the chance of transfer of infective material is supposedly less than by usual methods of "shaking."

An inspector, working in the northwest part of the state during this past year, called our attention to a very serious outbreak of EFB. It was stated that the bees had built up nicely for the honeyflow, but that upon addition of supers to the colonies, the colonies rapidly dwindled in strength and by midsummer were down to less than package size. It was further stated that when a hive body from one of the affected colonies was then placed on a perfectly normal colony in another yard, the same phenomenon occurred, with the bees dwindling to less than package strength in a matter of two weeks or so. Examination of the bees from affected colonies demonstrated that the bees were free of Nosema or other adult disease; examination of about 100 bees by a toxicologist disclosed the absence of any common poison such as arsenate or DDT. The brood combs submitted were found to have a heavy infection of EFB. The colonies were examined and were very weak, even during August while the honeyflow was

1. Paper No. 821 Miscellaneous Journal Series, Minnesota Agricultural Experiment Station, St. Paul 1, Minnesota.

still on. Later on, the colonies recovered to some degree, encountered a late flow, and made a partial crop.

This spring, the equipment was divided into check and test lots, and the test combs were sprayed with a power sprayer, using a thin sirup containing a quarter gram per gallon solution of terramycin as Terracon 180. After packages of bees headed by Italian queens were installed, the brood nests were again sprayed from top and bottom with the same dosage of terramycin. It was estimated that about 1/20th of a gallon was put on each hive. This treatment was repeated as often as time would allow. In addition, some packages hived at a later date were sprayed with a half-gram per gallon solution of streptomycin prepared in a granular form for veterinary feed purposes, and untreated checks were included.

An examination of these colonies by the author on June 18, about two months after installation, and following one prehiving spray and one to two posthiving sprays did not indicate that the disease was being controlled. In fact, unpublished data taken from one yard showed a predominance of disease in the treated colonies.

Since Moffett (1952) reported that spray treatment of EFB with streptomycin was not effective unless a level of 0.5 gram per pint of spray was used, it was decided to increase the total applied dosage of antibiotic by filling combs adjacent to the brood nest with a quart of sirup containing either 0.25 grams actual terramycin or 0.5 grams actual streptomycin per quart. Many of the colonies were extremely low on stores and at last report were taking the sirup. Final results will have to be given later, but improvement has been reported since heavy treatment began.

It is too early to draw hard and fast conclusions concerning antibiotic control of European foulbrood. Good reports concerning the use of terramycin and dihydrostreptomycin have come in from Europe, where EFB is currently more of a problem in many areas than is AFB. Up to the present, we had been unable to obtain infections in our experimental apiary, but the insertion of full combs from diseased Minnesota apiaries has caused the disease to spread to adjacent combs at this time. It is a curious fact that to this date, no disease has appeared from two combs obtained from Wisconsin by the courtesy of Dr. Farrar. According to Farrar (1953), heavy spraying with only 0.6 gram streptomycin per gallon has been very efficient in controlling EFB in that area.

It is apparent that, while a good start has been made in control of this potentially devastating disease, there are still more questions asked than answers given concerning its cause and control.

LITERATURE CITED—
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My Experience with EFB

by Clayton H. Adee

EARLY in 1952, I purchased a small yard of bees from a man across the river, who could no longer properly care for the colonies. When I discovered that something was wrong with some of the bees I was perplexed.

The state inspector had checked the yard for disease and disposed of some AFB. However, he requested that I leave the bees on the old stands, which I did.

Later in the spring something began to happen to the bees. Whole colonies of strong bees would dwindle to nothing in about three weeks. I inserted a small object, a match stem, into a cell and the material roped out on the first pull and then turned to a waterylike substance. After that there was no more roping. I did not send a sample to the laboratory, but a neighboring beekeeper who had had severe losses from similiar diseases did send samples to be checked and the disease was pronounced EFB. I presume that my yard had EFB also.

The bees that survived during the main honeyflow seemed to recover or remain in good condition for the rest of the year. The question that bothered me at the time was how to stop this virulent form of EFB, if such it was.

In attending a beekeepers' convention I heard G. H. Cale discuss the value of terramycin for the control of diseases in bees. Later I wrote to him asking his recommendation for treating my bees. This recommendation was freely given.

One day soon after I had received this information I was in Omaha. I set about trying to find terramycin which I could use in my beehives. Finally, after much effort, I was able to secure some from a feed mixing company, which their chemist assured me would not harm my bees. This mixture contained five grams to the pound.

This compound would fluff up so much that measuring it was impossible, but I estimated that I was using approximately a half gram of terramycin to each colony. I sifted the terramycin on the top bars of the food chamber—I winter my bees in two stories—letting a portion drop between the frames onto the bees. This was early in March of this year. Later in the spring I repeated the treatment.

I have made three inspections this spring and summer—the last time on July 3—and I have not found any disease of any kind.

Last year I fed honey treated with sulfa but it did not seem to affect this disease. Consequently, I believe that terramycin is a good preventive of EFB. An expert on bee diseases might disagree with me on whether or not this was EFB, or that terramycin had anything to do with the cure or prevention, but I firmly believe I could have prevented all losses had I known of terramycin one year earlier.

I have since been able to obtain terramycin in soluble form but have not had the opportunity to test it out.

I plan to give all my bees a bit of terramycin early each spring hereafter.

Nebraska

European Foulbrood Meets Its Master

by John W. Holzberlein, Jr.

OUR experience with the new type European foulbrood dates back to 1940. We have been visited by outbreaks of varying intensity each year since that date. Some years it has not been severe, but seemed to gain a little in coverage until the past few years it has been a serious problem. I say "new type" because the European foulbrood we have now, while seemingly caused by the same organism, Bacillus pluton, acts altogether differently than the EFB I first became acquainted with in New York state in the middle twenties. The specific for EFB at that time was to kill the queen, then in ten days kill all queen cells and introduce a young queen of good Italian stock. If the bees did not begin to clean up at once they would do so as soon as the honeyflow began. Since the disease usually made its appearance during the dearth just before the main flow began, the timing was usually about right. Of course the colonies did not amount to much as honey gathering units, but we did not know much about colonies with 60,000 bees or more in those days, nor did we know what they could do. That treatment does not work with the European foulbrood we have had to contend with here in Colorado since 1940, although we long ago got rid of the stock that suffered the first major breakdown.

As nearly as I know, Jas. Pierson, of Bayfield, Colorado, first reported the value of streptomycin in the control of EFB. This information was corroborated by the work of J. O. Moffett at Colorado A. & M. College, and in 1951 we cleaned up several severe cases of the disease by its use. The difficulty was that we waited until the disease was well advanced, and while we ended with a clean colony, it made no honey crop. A new technique had to be developed if we were to have large colonies capable of storing a profitable amount of honey. We now seem to have this technique worked out, and this year have checked one of the worst early infections of EFB we have ever seen. We used two of the antibiotics in different tests and both gave results.

We used both streptomycin and the Pfizer Company's new Terramycin Poultry Formula. We used considerably more of the streptomycin because we could not get the other material in time to make plans for using it, then, too, it had not been as well proved as the streptomycin had been. Of the streptomycin, we used both dihydrostreptomycin and streptomycin sulphate and could tell no difference in the results obtained. The smaller amount of the Terramycin Poultry Formula we used also seemed to give good results. We plan to give it more extensive testing next year.

Here is how we did it. We treated all overwintered colonies beginning the first of May whether they showed any EFB or not. We used an ordinary sprinkling can and sprinkled the two-story colonies with sirup in three places; the top of the combs in the lower brood nest, then the bottom of the inverted second story and finally the tops of the second story combs. We gave them as much sirup as we could without having it run out the entrance. This amount varied according to the size of the cluster. Three-story colonies got an extra dosage if the size of the cluster warranted it, but there is no use to pour the sirup where there are no bees, for it will just run through onto the ground. This early treatment was largely a preventive treatment and was done with streptomycin only at first.

For this sprinkling we used a thin sirup, 7½ gallons of water to 50 pounds of sugar which makes about 12 gallons of sirup. To this we add-

Above left: Step 1—Sprinkling top of lower brood chamber. Below: Step 2—Sprinkling bottom of second story. The inner cover is then removed and top of upper combs is sprinkled. Above right: This is a comb of brood from a package hived on EFB combs—it had its second sprinkling at the time this picture was taken.

ed two grams of streptomycin or 1/6 gram per gallon. The bees seem to lick it up just as readily as heavier sirup, and since the liquid is used only as a carrier for the drug the amount of sugar does not seem to be important so long as the bees will take it. In the feed sirup which we made with a higher concentration of sugar, we also used 1/6 gram per gallon. Some colonies had already developed rather serious infections of the disease when we began treating them and in these colonies we shook most of the bees off the combs and sprinkled the sirup directly into the cells of the brood combs. A gallon of sirup could be put into the combs of the brood nest in a matter of two or three minutes, and two treatments, a week apart, served to check the worst cases and completely cleaned up most of them. In sprinkling directly onto the brood we tried to cover the area immediately around the sealed brood, for the sirup will just run off the sealed brood. Some runs off anyhow, but the bees that have been shaken off the combs act as a sponge on the bottom of the hive and soak up the drip so that little if any is wasted. Some larvae are floated out of the open cells by this method, but why worry about them, if they had not been treated they'd most likely have died anyhow, and those that are left develop into healthy bees.

All colonies that were light, and that meant many of them this year, were fed a sirup heavier than the sprinkling sirup. To this we also added 1/6 gram of streptomycin to the gallon with good results. We used nearly five tons of honey for this purpose this spring and added 1 gallon of water to 3 gallons of honey. Our honey is low in moisture content so that it took this much water and remained attractive to the bees and showed no tendency to sour or ferment before it was consumed by them. Of course no great amount was made up far in advance of feeding.

We have had conflicting recommendations on the amount of Terramycin Poultry Formula to use per gallon. The first was to use 2 level teaspoonfuls per gallon. This was effective in the control of the disease, but quite expensive at the price one must pay for the material. Lately we have recommendations from the Pfizer company for use of weaker concentrations and recently have used the following table:

For Use as a Spray or Sprinkle—7½ gallons water—50 pounds sugar (this makes about 12 gallons) to this add either: 2 grams streptomycin (either dihydrostreptomycin or strept. sulphate) or 1½ oz. (9 level teaspoonfuls) Terramycin Poultry Formula.

For Use As a Feed Sirup to Supplement Shortage of Stores in the Hive: 10 gallon water—100 pounds sugar (This makes about 18 gal. sirup). To this add either: 3 grams streptomycin, or 5 oz. (30 level tsp.) Terramycin Poultry Formula.

While the above dosages have been highly effective in the control of EFB, yet I cannot help feeling that more research should be done to determine the most efficient dosage of both the antibiotics that can be used, and it is to this end that we hope that at least two or three of our College Experiment Stations are doing some work and will publish their findings on this subject before another bee season comes around.

The above findings may sound a bit sketchy to a scientist, but are none the less the results of careful observations. We are not guessing at the results and while they show the picture for only one season they do offer a lot of hope to many who were in desperation a season or two ago. From experience, we know that the use of these two materials has enabled us to have our bees at honey gathering strength, while without them many colonies would have been hopelessly weak and would have had to be doubled up before this time.

It is hoped that more economical ways will be found for manufacturing these materials for the cost is still high, and that more efficient ways of administering them to colonies of bees may be worked out so as to involve less labor. If, however, they continue to free us from the scourge of European foulbrood they will be worth the trouble it now takes to administer them to our bees.

Colorado

Combating EFB

by Herbert K. Studier

SEVERAL years ago we had an unfortunate experience with European foulbrood. This experience jolted us into the realization that EFB can be very damaging, spreading like wildfire. The immediate effects on the colonies and crop for any particular season can be much worse than in the case of American foulbrood.

Before the spring of 1945, we scarcely knew what EFB was. We had moved about 100 colonies to Georgia in the fall of 1944 with the intention of making up and hauling back 400 4-frame nucs to Minnesota. About the first of March, as the brood rearing season began in earnest, our bees began to break down with EFB, until by the time we were to make the nuclei, about one-third or more of the colonies were infected and could be practically written off as far as any production from them was concerned. This left us with only 60 good colonies from which to make 400 nucs, but with the help of another beekeeper we finally managed to get them made.

To make matters worse, I was completely "green" at the business of grafting and raising queens. I was actually doing a good share of the grafting from a nice, light Italian colony which was infected with EFB. This practically ensured that a large percentage of the 400 nucs would also have EFB.

We were troubled all that season in the North with EFB, and while we did get an excellent crop from the bumper season we had, it is hard to tell how many thousand pounds of honey we lost as a result of the many colonies weakened by the disease.

During the summer, a good friend of mine told me his plan for eradicating EFB. He said, "By no means graft from any colony having a single cell of dead brood of any kind, but graft only from colonies having perfect brood."

That did the trick. It took about two years to get rid of 98 per cent of the disease, but even after the very next queen rearing season in Georgia we were well on the road to recovery from EFB. In addition to grafting only from colonies having perfect brood, we killed off all EFB colonies in the fall for the first two years.

Since 1947, we have had only an occasional case of EFB. It worries us no longer, and we pay little attention to it—only that we make certain to do our grafting from perfect colonies.

Regarding the new strains of EFB which are reportedly much more virulent, perhaps we are lucky as we have had no experience with them. I am inclined to believe that the right strain of bees would overcome even this new strain of EFB.

Several years ago it was rather puzzling to me when I read one of the A. I. Root Company's advertisements which stated, "Our bees have been bred for honey production and are able to resist European foulbrood. This is all that needs to be said for quality in a honey bee." After our experience with EFB in 1945 and 1946 I realized that they were just about right.

We have tried Terramycin Poultry Formula 25 on less than half a dozen cases of EFB. We obtained very good results on a couple of them which we treated regularly and watched closely, but it seemed to us to be somewhat slower in its action on EFB than it is against AFB. Perhaps the concentration of drug should have been greater for EFB. We used the same for both—200 mg. per gallon of spray.

Minnesota

Texas Instead of Florida . . .

On page 200, May issue, we mentioned Florida as being the stamping ground of C. J. Burgin and his AFB staff. We meant Texas instead of Florida. H. S. Foster is doing similar good work as chief inspector in Floriad.

Institute Display Material . . .

The American Honey Institute furnished honey display material for three Schuster Stores in Milwaukee for Honey for Breakfast Week. One of these stores listed Sage Honey, Land O'Clover, Wisconsin Honey, Florida Orange Blossom, and Canada—"Miel de la Trappe" Honey.

Two Years with Terramycin

by G. H. Cale

ONCE I was a deputy inspector under Dr. Burton N. Gates in Massachusetts, covering considerable territory in the eastern part of the state. European foulbrood was frequent in mixed and black bees, but seldom serious in Italian colonies. The removal of the worst combs and requeening with young Italian queens was standard practice. Here in the Middle West, European was so seldom noted that finding a colony with it was a surprise. The same control was effective.

Suddenly, in the last few years, the increasing occurrence of European has caused considerable alarm. In our own apiaries, this year, ten per cent of all the colonies showed European and it is at its worst when the bees should be ready for a honeyflow. This apparently coincides with observations by others north of us and in the intermountain region. Entire yards were so badly infected that no crop was possible.

What has caused this disastrous behavior of a previous relatively mild and easily controlled disease? No one now knows. However, since the use of sulfathiazole had proved so effective in the control of American foulbrood, the trial of antibiotics for this serious encroachment of European seemed a hopeful move. Sulfathiazole is of no value against European but other forms of the sulfa group are effective for American and so are some of the "mycins." Would any of them do for European?

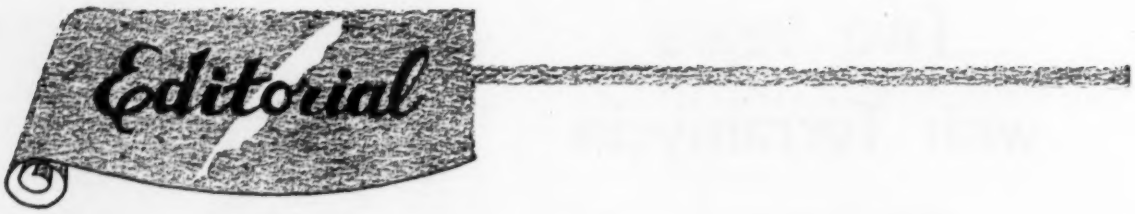
About this time, we read of the promising trial of terramycin in Canadian experiments. Correspondence with Chas. Pfizer & Co., Inc. (630 Flushing Ave., Brooklyn, N. Y.) resulted in a trial amount of what they call Terracon 180, a concentrated form of terramycin containing 180 parts of terramycin activity per pound. It is expensive, over $100 a pound, and insoluble. I think its manufacture has been discontinued.

Last year we had an entire yard of package bees hived on miscellaneous combs and almost all of the colonies, after build-up, showed varying amounts of European and shrinking populations. The first trial of terramycin with them was in sirup before the honeyflow, using a heavy amount of the Terracon. The improvement in the bees so treated was almost immediate. When the flow started, the bees would no longer take treated sirup, so we used heavy but indeterminate amounts of Terracon as a dust on the combs. By fall the disease was gone, while check colonies still had it. This year the same colonies are clean.

Early in the spring this year, considerable European showed up in most of the yards of overwintered colonies and the Pfizer Company sent us a generous amount of their standard Terramycin Poultry Formula 25 (soluble). This has 25 parts of terramycin activity to the pound so we used more of it than we had used of the Terracon. Two dustings to the colony and the disease is usually gone. If the queens are good the brood becomes solid and the interruption in the growth of the colony is slight particularly if the disease is found in its initial stages. We have also "cured" cases of American with this material. However, in our opinion, the use of terramycin should be for the prevention of disease. Prevention costs less and colonies that have preventive treatment seem to forge ahead very rapidly. If anything, they do better than colonies not so treated. While we cannot now be sure that terramycin will act as a preventive for both European and American foulbrood we feel quite hopeful that it will.

This spring, packages from the same source as those that showed the disease in 1952, were fed sirup with terramycin added and no disease has yet been apparent in them. They developed rapidly and are in flow and doing almost as well as overwintered colonies.

Next spring it is our plan to dust between the brood combs of all colonies with about a third of an ounce of terramycin in the hope that we will not have any cases of either American or European foulbrood. A pound of TPF (Terramycin Poultry Formula) costs about $11.30 and a third of an ounce would cost about 23c. Perhaps less preventive is necessary and so would cost less. At any rate we have had enough losses lately from European to pay for quite a few pounds of terramycin and enough in the past from American to purchase a lifetime supply.



You and I Are the Grassroots of Beekeeping

The "grassroots" of organization are the many, many beekeepers located in every county and in almost every township throughout this vast land of America.

These "grassroots"—you and I, wherever we may be, should be members of a county or local beekeepers' organization. This is where organization starts. If you do not have such an organization, seek out your neighbor beekeepers and organize one. You have common interests and you have mutual problems. Through work and discussion, each of you will benefit. Then affiliate with your state or regional beekeepers' organization.

So the "grassroots" now have sprouted and growth is ascertained through organization which stems to the state level where greater accomplishments can be made, where problems which perhaps could not be settled at the local level can be discussed with those having greater experience and knowledge, and where there is the same community of interest of benefit to you and me.

The State Beekeepers' Organization should, of course, affiliate with the regional organization such as The American Bee Breeders' Association, or with the national organization, The American Beekeeping Federation. Thus the "grassroots" now stem up through the local association and the state organization, and branch upwards to the national level.

On the national level, the greatest good can be accomplished, the benefits of which reflect back downward on the state, the county, and each of us who keep bees. And whether we are small or large beekeepers, the benefit comes to us in the same proportionate way.

This is the story of organization, but organization can only become strong and successful commensurate with the strength which springs from the "grassroots" of the beekeeping industry. When there are many thousands of beekeepers in comparison to the relatively few who belong to an association, organization is sick and weak. There is no limit to the good that could be accomplished, of direct benefit to each of us, if the "grassroots" of beekeeping would awaken to the need for improved organization.

On Top of Mt. Everest

Were you there? We were. Not physically but in the person of Edmund Hillary. Hillary is one of New Zealand's prominent beekeepers. Now that he is Sir Edmund Hillary it adds to the feeling of rejoicing that he, a beekeeper, was one of the two that topped the world's mightiest crest. In all accounts of the conquest he is mentioned as "the New Zealand beekeeper." R. Goddard, Raetihi, New Zealand, writing to us about the now famous exploit, says: "The conquest of Mt. Everest is of special interest to beekeepers throughout the world. Edmund Hillary and George Lowe were the two New Zealand members of the expedition and both have connections with bees. Ed. Hillary, with his father and brother, is a well-known commercial beekeeper and queen breeder. Lowe is a school teacher by profession but his father is an orchardist in one of our best fruit growing districts and keeps bees for pollination services. In the Auckland Star, June 3d, it is said that Hillary's stamina was developed on New Zealand honey."

So, we were all up there with you, Sir Hillary, and may your fame and that of those with you be everlasting.

Invest in Your Future by Supporting Organization

One of the greatest needs of the beekeeping industry is improvement in organization. No one questions such statements as, "United we stand; divided we fall," and, "In unity there is strength." No one doubts that we are living in a period of time when each group or faction must be well organized or succumb to the pressure of other, better-organized groups.

We already have seen the many results which have been accomplished by the organizations we have, even though these organizations are limited both in their membership and their financial support in a serious and major way.

Honey as a delicious and wholesome food has been called to the attention of millions of housewives by the American Honey Institute. Its recipes and uses for honey are used constantly in the many newspapers, magazines, radio and T-V programs, and other media of publicity throughout the country.

The work of the American Beekeeping Federation has resulted in a price of 12 cents per pound for extracted honey, instead of about half that amount, as stated by a recent membership letter issued by the Illinois Beekeepers' Association. Pollination by honey bees has been called generally to the attention of people everywhere with the result that it has become a paid agricultural practice in concentrated seed, vegetable and fruit areas, and colonies are welcome on farms without payment of rental charges.

These are but a part of what your organizations have accomplished for you. Let us say they are merely samples of what could be accomplished to improve your lot and mine IF EACH OF US WOULD DECIDE TO INVEST IN OUR FUTURE BY SUPPORTING ORGANIZATION.

Questions and Answers

Do you know of any way to revive bees that have come in contact with DDT?

Isaac S. Diller, Florida

Bees that have been sprayed with DDT are just dead bees as far as we know and we do not know of any antidote that will revive them. If bees have been closed up too tight and smothered there is nothing that can bring them back to life. When bees are closed up they become nervous and excited and many fret themselves to death. If they are not really dead but unconscious, some may revive if they are let out of the container into the air.

DDT is toxic to bees and will poison them. Do not use it to run bees out of a house. Sulphur smoke will work sometimes, but will also kill the bees if used too much and too long. Carbolic acid crystals in the smoker will run the bees out and will not kill them. Use burlap or a similar material in the smoker. After the smoker is burning, sprinkle carbolic acid crystals on the burlap. Do not puff smoke in the opening where bees are expected to come out, but above or below the opening.

I have 18 strong colonies of bees that are hard to handle. I wish to use them to make nuclei and give the nuclei pure bred queens. How many nuclei should I take from each colony during April, May and June?

Geo. W. Anderson, Arkansas

To start a nucleus, I usually take one frame of sealed brood and clinging bees, if a queen is to be introduced in the nuc. The number of nucs that can be started from a colony depends upon how strong the colony is at the beginning, how fast it builds up or how prolific the queen is. Of course, you must realize if you keep taking split offs, the colony will stay weakened. If you want a honey crop from the parent colony, you cannot weaken the colony too much. Without seeing the colony, I am unable to tell you how many split offs can be taken. The colony should be up to peak strength by the time the major honeyflow starts.

You could rob the colony of all the brood to start nucs with, making sure the old queen is left in the hive. When the desired number of nucs are started, unite the weak parent colony with another hive, after killing the old queen.

Current Reading

Conducted by

M. G. Dadant

Giant Bee of India . . .

R. N. Mutto, writing in the March-April issue of the Indian Bee Journal of which he is editor, described quite fully the giant bee (**Apis dorsata**) of India. There also appears two pictures of "Natural Tree Apiaries" from which one can assume that "dorsata" "gangs together" with several colonies in a single tree.

Apis dorsata by instinct is vicious and has never been successfully brought under man's influence. Mutto reports a trip by the Minister of Rajasthan on an elephant. The minister was bedecked with flowers, which were attacked by the giant bees with the result that flight was necessary, and only after a severe stinging.

The Minister of Agriculture for India has recently recognized the value of bees in the agricultural life of India. Mutto, in the meantime has been publishing his magazine for 15 years and keeping bees for the same length of time.

Queen Introductions . . .

The British in cooperation with their experiment station at Rothamsted are endeavoring to find more dependable rules for safe introduction of queen bees. To that end, professional breeders, commercial beekeepers and amateur enthusiasts are working together and reporting their success and their trials in queen introduction under differing conditions, both of queen, care, weather, etc.

E. B. Wedmore, the noted bee author, tells of the first year's results in a 24-page brochure issued by the Bee Research Association. It is too early to even hint at results though scent seems to play an important part. Bees queenless 2 to 8 hours so that they realize their queenlessness and yet have not started cells seem most amenable especially if requeening is done during a flow or while feeding. Three types of cages are being used in the tests.

Copies of the report may be obtained from the Bee Research Association, 2 Northover, Bromley, Kent, England, for 50 cents.

Honey Bees and Youth . . .

Alin Caillas, author of several prominent bee books, agricultural engineer, and laureate of the Academy of Agriculture, is the author of yet another book about bees "Les Abeilles, Source de Jouvence & de Vitalite" (The Honey Bees, source of Youth and of Vitality).

His researches have been extensive on this subject quoting from the work of Faust, Metchnikoff, Voronoff and Bogomoletz, who have done much to identify the life and youth giving properties of the glands, and secretions of the human body.

The book explains the close relationship between those life giving vitamins and the pollen and royal jelly we are acquainted with in the beehive.

Caillas claims nothing, but infers that herein may lie a hope that the valuable properties of the pollen, royal jelly and of honey may be transmitted to the human body with the possibility of prolongation of the life span.

The book is paper bound, of 100 pages. It may be obtained direct from the publisher and author Mr. Alin V. Caillas, 40 Boulevard Aristide - Briande, Orleans (Loiret) France for $1.25.

Pellett Clover Inoculation . . .

As our readers well know, the difficulty in expanding the use of Pellett Clover (Trifulium ambiguum) comes from the fact that it is so hard to inoculate for it. In fact all attempts so far have discovered but sparse nodules on the clover and responses of other inoculations have been practically nil. Parker and Allen in "Soil Science Proceedings" for October 1952 explain this but infer that there is still hope of finding allied trifolium plants through which nodulation and incentive to growth may be encouraged.

The 1950 Census on Bees and Honey

The office of the American Bee Journal has recently received a copy of the general report on livestock and livestock products of the "1950 United States Census of Agriculture," issued by the U. S. Department of Commerce. An attempt is made here to review for our readers the information contained in this report on bees and honey.

The census of agriculture was taken in conjunction with the censuses of population and housing. If a person's house was on a farm or on 3 acres or more, the census enumerator was instructed to fill out an agricultural questionnaire which included 4 questions on bees and honey. Urban people had a simpler form which asked if they owned any bees and, if they had 3 or more hives, they were placed in a special grouping to be called upon by a specially trained census enumerator.

Four questions were asked by the census enumerators. The first inquiry asked the operator, "Were there any bees owned by you last year?" If answered in the affirmative, the second inquiry called for the number of hives of bees owned in 1949, and enumerators were instructed to put down the largest number of hives owned at any time during 1949. The number of hives reported for censuses prior to 1950 represented the number of hives of bees owned at the time the census was taken.

The third question asked for the amount of honey produced in 1949 by the bees owned. The fourth inquiry called for the value of the 1949 crop of honey and beeswax sold and of bees sold in 1949. Enumerators were instructed to include with this value receipts from use of bees for pollination purposes. Since the censuses prior to 1950 only included the value of the honey produced, a proper comparison cannot be made.

A comparison of the results of the 1950 census with those of previous years is of interest, however.

The number of farms reporting owning bees has declined notably since 1900, although the decline from 1940 to 1950 is not as great as in other periods. An examination of the general decline in number of farms reveals that although there has been a gradual reduction in numbers of farms as farms became larger in size, the reduction in numbers of farms keeping bees is much greater than the general decline in numbers of farms. This is reflected in the general decrease in the per cent of all farms which reported owning bees.

While the number of hives reported owned in 1949 shows a slight increase over the 1940 census figure, there has been a general decline in the number of colonies on farms since the turn of the century. The average number of colonies per farm reporting, however, shows a general increase from 5.8 colonies per farm in 1900 to 9.3 colonies in 1950.

Production of honey apparently varied widely due to weather conditions and perhaps to the improved ability of producers in managing their bees, and other factors. The value of production likewise varied due to economical conditions, apparently.

The breakdown of numbers of farms and numbers of hives owned is particularly interesting and worthy of study. According to these reports, 86.7 per cent of farms reporting own less than 10 colonies, 98.0 per cent own less than 40 colonies with a meager 2 per cent owning 40 colonies or more, for the United States as a whole. States having a higher percentage of large beekeepers, as shown by the detailed report, are principally located in the mountain area of the West but also in California, Florida and several of the North Central states.

It is obvious that a large amount of data was missed by the census enumerators, and it is our opinion that they are particularly short in the coverage of beekeepers operating 40 or more colonies. We are informed that the Census recognizing the difficulty of securing bee and honey data, as well as the incompleteness of their results, do not plan to include questions on bees in the 1955 Census.

Comparison of U. S. Agriculture Census on Bees and Honey Production—1900 to 1950

	1950	1940	1930	1920	1910	1900
1. Were any bees owned by you last year? Farms reporting bees.	258,159	265,158	459,688	540,917	585,955	707,215
Per cent of all farms	4.8	4.3	7.4	8.5	9.1	*
2. How many hives of bees did you own last year?	2,395,089	2,276,681	3,107,755	3,467,396	3,445,006	4,108,239
Ave. No. of hives per farm reporting	9.3	8.6	6.8	6.4	5.9	5.8
3. How many pounds of honey were produced last year by your bees?	69,017,796	66,862,236	83,546,415	55,224,061	54,814,890	61,099,290
Farms reporting honey produced	155,374	172,723	323,999	312,997	320,367	*
Per cent of all farms	2.9	2.8	5.2	4.9	5.0	*
Average production per farm reporting	444	387	258	176	171	*
4. What was the value** of last year's crop of honey and wax sold or to be sold, and bees sold?	$8,374,925	5,802,621	12,260,089	13,988,670	5,762,869	6,656,611

* Figures not available
** Values in item 4 are not comparable since previous censuses only included value of honey produced (see text).

1950 U. S. Agriculture Census—Breakdown of Number of Colonies and Number of Farms Reporting

		1 to 9	10 to 39	40 to 159	160 to 319	320 to 639	640 & over
In Numbers of farms	For the U. S.	223,805	29,110	3,697	651	465	431
	For the North	64,665	9,623	1,767	282	181	110
	For the South	147,230	17,866	1,359	176	108	96
	For the West	11,910	1,621	571	193	176	225
In per cent of farms	For the U. S.	86.7	11.3	1.4	0.3	0.2	0.2
	For the North	84.4	12.6	2.3	0.4	0.2	0.1
	For the South	88.2	10.7	0.8	0.1	0.1	0.1
	For the West	81.0	11.0	3.9	1.3	1.2	1.5

Lindane -- for Controlling Troublesome Bees, Wasps, and Yellow Jackets

by Richard L. Post

Associate Entomologist, N. Dak. Agric. College Expr. Station,
Fargo, N. Dak.

HONEY bees and yellow jackets are beneficial insects and their control is recommended only when necessary. The following results using simple equipment show how inexpensively unwanted swarms and nests can be destroyed.

While remodeling a country church, carpenters were repeatedly stung and driven from their ladders by a swarm of bees in the partitions. Charles Lesher, an entomology major, protected by means of a bee veil, applied a thorough application of 25% Lindane wettable powder through cracks and apertures by means of a Hudson hand duster. This type of duster has a narrowed aperture on the front which will fit into cracks and crevices. Within 48 hours the annoyance had subsided. Young bees hatching out would come in contact with the Lindane dust, which also has slight fumigating action when confined, and be killed. There was no further trouble to the carpenters except a second colony was reported in the steeple. The student cooperator did not wish to ascend a ladder and make applications at this height and necessary repairs were deferred until cold weather when the bees were inactive.

Mr. G. Ramstead, manager of a store in Wahpeton, reported annoyance from honey bees coming into his store through cracks in the partition. A Hudson cadet duster and a small quantity of 25% Lindane wettable powder were mailed to him with instructions to apply it in the cracks. He reports, "We applied the Lindane and in one application it completely destroyed the terrible infestation we had here. It was indeed effective."

A telephone call was received from Hector Airport where a heavy cluster of swarming bees had alighted on the back wheel of a truck. Lindane 20% emulsion concentrate was applied at the rate of 3 quarts to 100 gallons of water. Three spray applications of 1 quart each over a fifteen minute period completely destroyed the cluster. Upon coming in contact with the spray they dropped to the ground and a complete kill was obtained in fifteen minutes.

On August 25, a nest of yellow jackets attached to a branch of a tree had blown off during a windstorm. The insects flying about the broken nest were very annoying. In response to a telephone call, R. D. Aanestad, an entomology major, was sent to take care of the situation. One ounce of 20% Lindane emulsion concentrate in one gallon of water was used in an E-Z knapsack sprayer. Immediately after the application the yellow jackets appeared affected and crawled slowly over the ground. Twenty-four hours after the application no live yellow jackets were observed.

Following the removal of a brick pile, a nest of yellow jackets relocated themselves in a hedge and annoyed members of the family. Lindane at the rate of ½ pint of 20% Lindane ("Isotox") in 2 gallons of water was used to spray the yellow jackets and the partially constructed nest. The insects fell to the ground immediately after spraying and on the following day only one yellow jacket was in the vicinity. The owner was cautioned that this higher than normal rate of application might damage foliage. On July 24, two weeks later, the hedge was examined and the leaves had been badly burned. However, new buds were appearing which indicated a temporary but not permanent effect on the hedge.

A request was made to eradicate a nest of yellow jackets in a plum tree in the yard of Mrs. Rex, in Fargo, because several children had been stung. Cyanogas dust was directed into the aperture of the nest by C. L. Lesher and when the insects therein were killed the nest was removed. Mr. Lesher is a deputy bee inspector and is well versed in the use of cyanogas employed to kill bees having foulbrood. Such fumigants are safe only in the hands of experienced users and are not recommended in homes and partitions where the fumes could collect and affect occupants.

North Dakota

Questions and Answers

We have six hives of bees and like to use all the products. We have tried making candles from wax cappings but they will not burn as the wax melts faster than it burns and smothers the flame. How can the wax be treated so that it will burn properly?

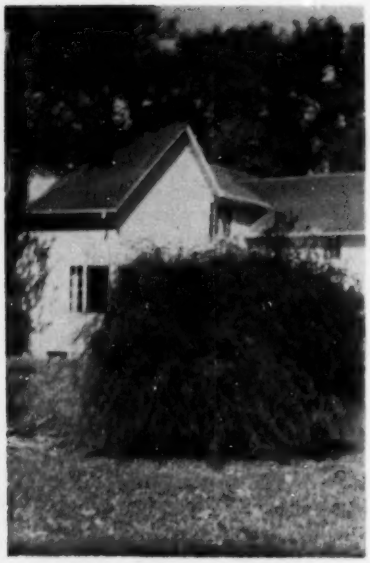
Mrs. J. C. Higgins, Nebraska

The wax you have rendered from cappings is not refined enough for successful candle making. Beeswax, even that rendered from cappings, contains propolis and propolis has a large per cent of resin. The cells and cappings on comb are coated with a sort of varnish which contains a lot of resin. Unless the wax is filtered in some way to remove the resin, candles made from it will not burn properly. The resin melts at a lower temperature than pure wax. Wax containing propolis is not satisfactory for making candles, for the propolis will char and clog the wick. Wax for making candles must be filtered and prepared for the purpose.

How long will aster honey stay liquid after being heated?

Bryson Waddell, Arkansas

In the first place, honey should be heated no hotter than 160 degrees, then cooled very quickly. It should not be kept hot for a long period of time as the flavor of the honey might be ruined. The honey will stay in liquid stage longer in a warm room than it will in a room where the temperature is allowed to get cool. Of course, aster honey granulates very rapidly, but a lot depends on the temperature of the storage place.



From the Honey Plant Garden

by Melvin A. Pellett

Asparagus may be used successfully as an ornamental in the yard.

CORK TREE: We noted the bees working the blossoms of the cork tree heavily. It blooms in early June, and this is only the third time our two young trees have bloomed. Honey bees are attracted to the flowers in large numbers even this year when there is a heavy flow from white Dutch clover and other flowers at the same time. Cork tree **(Phellodendron amurense)** is an Asiatic tree growing to 40 feet, with corky bark. It is described in references as hardy in the North and adapted to most soils; of rapid growth when young and developing into a shapely, round headed tree which makes good lawn specimen and nectar source.

Blooming at the same time, a large honey locust is so freely worked by bees that, at times, it sounds like a swarm. This particular tree is a sport which has neither pods nor thorns, and makes a very desirable shade tree for the yard.

A large tree yielding nectar will furnish at least several times the amount of bee pasture as the same space furnishes when occupied by lower growing plants. If more of the better nectar yielding trees can be popularized for shade and windbreak uses, in time, this will result in valuable supplemental bee pasture.

IS THIS THE GIANT ECHINOPS? For years a large flowered echinops has been sought for trial in the test gardens. One was reported as having been observed by a British explorer in Turkey—an echinops having flower heads six inches in diameter, whereas our familiar varieties such as the Chapman honey plant have flower heads two to three inches in diameter. In response to our request we have been furnished a few seeds of several new varieties of echinops. We have several plants started of four new varieties. There is considerable variation in the appearance of the several varieties of young seedlings. These plants will be watched with great interest; it will take another year to see whether any will bear a flower ball like that which was described by the explorer.

Harold L. Nebel, of Missouri, wrote us that he has some Amour River privet used for a high natural hedge which the bees work furiously for several weeks in early June. He observes that this shrub, when not kept trimmed, blooms abundantly; and feels it one of the most valuable to beekeepers. He plans to make several further plantings for natural hedges. Mr. Nebel also reports that flowers of blue spirea **(Carvopteris)** are constantly visited by bees in summer. Judging from the number of bees visiting it and length of bloom, he considers it to be a valuable honey plant. In common with Mr. Nebel, we observe the bees working freely, our several varieties of privet and also blue spirea. Blue spirea is subject to winter injury here (western Iowa) so does not demonstrate its full value, but the blossoms are always alive with bees.

I. L. Revell, of Laramie, Wyoming, reports that he has some Pellett clover growing, which has multiplied from his start of root divisions he secured in 1947. He reports the plants, although rather short (about one foot high) were full of bloom last year. Laramie is 7050 feet above sea level, and annual precipitation is about 17", so they must do a lot of watering. Mr. Revell reports the Pellett clover on the north side of his house, which was well shaded, grew better than that on the south side.

ASPARAGUS: Asparagus is a honey plant which is the housewife's delight. It is commonly grown both commercially and in home gardens as a fresh vegetable in the spring.

The bloom of asparagus yields pollen freely and the bees also get some honey from it. We have, at Pellett Gardens, an acre and a half of asparagus from which we harvest a good crop in the spring. After cutting stops in the middle of June, the plants grow quickly and are in bloom three weeks later. Usually the asparagus patch is humming with bees during the long blooming period.

The top growth of asparagus is an ornamental plant during the summer and fall. The accompanying photo shows how it may be used for decorative effect in a yard.

Asparagus is a plant which might have possibilities for use in wildlife conservation. The heavy growth makes cover for wildlife and the seed berries which stay on during winter are feed. We note that pheasants can usually be found in our asparagus patch during fall and winter. Further, the patch is often a good place to hunt rabbits in winter. The plant is relatively easy to start.

Bottling Honey Direct from the Extractor

by E. F. Bea

A FELLOW beekeeper and maker of equipment asked the writer to draw a sketch of the honey-house equipment which we use and explain how we use it. The good wife was called upon to draw the sketch and I will try to explain how we manage our equipment.

Many beekeepers, in the past, have bottled honey direct from the extractor, often without too much care in regard to straining and processing. This honey soon granulated and in a market where granulated honey is in demand this is fine. Our customers, however, demand a good flavored honey, light in color, free from bubbles or foam and in liquid form. Honey which starts to granulate does not have a pleasing appearance to most customers in this area. Therefore we try to give them what they want and the fact that our sales are increasing each year makes us think that it must be appearance and flavor that help sell our product.

To explain our procedure, the following reply to our friends may give readers an idea of how we extract in August, bottle it the same afternoon direct from the settling tank, and deliver some of this same honey to our grocery trade in May of the next season, with the honey still nice and clear with no signs of granulation. The process is not original with us as other beekeepers have preceded us in much of our arrangement. There is a lot of work involved at the time of extracting, but when the honey is properly processed and put into the jars, the work is finished and the extra work of reheating, liquefying, and lifting is eliminated.

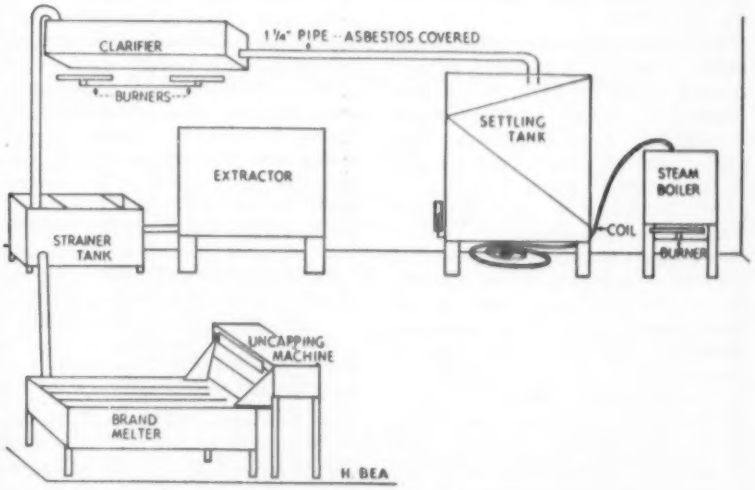
In regard to our extracting-bottling setup, it is nothing elaborate, but is designed to eliminate much needless work and will put out a quality type of bottled honey which will stay liquid for about a year in this area. We do not have a large steam boiler, and we use the 8-gallon steam generator for the melter and uncapping machine, and one 8-gallon steam generator for the coil under the bottling-settling tank. We use bottle gas for heat and large, commercial type gas burners which are manufactured in Iowa. The Neises small size clarifier is used and we have two of the large gas burners under it and they furnish ample heat.

The clarifier is hung from the ceiling, low enough to leave room to inspect and clean the clarifier but high enough to provide gravity feed to the settling tank. The settling tank is used as a bottling tank as we bottle direct from there. We use a Perfection honey gate when bottling into pails or 60-pound cans and have a "no-drip" bottle filler which we use when bottling the small size jars. Both fit the same opening in the settling tank.

We use the Woodman strainer tank with the automatic switch and float, but we do not depend on the automatic feature as we control the heat with an ordinary switch, in order to get the honey exactly the right temperature. The strainer tank is fine as it helps to keep bits of wax and so forth out of the pump and clarifier. We use a 1¼-inch vane pump to lift the honey from the strainer tank up to the clarifier. Close watch of the temperature is kept and when the honey is heated to 160 degrees or a trifle over that, the pump is started which puts more cold honey into the clarifier at the end opposite from the outlet. This forces the heated honey out into the pipe to the settling tank. This 1¼-inch pipe is covered with asbestos to hold the heat and the settling tank is covered with insulation and an outer shell of galvanized sheet metal to help hold the heat while the honey is settling and the foam or air bubbles are collecting on the top of the honey. The settling tank is also equipped with a cover and a tank thermometer. A baffle inside the settling tank lets the honey run down the incline to prevent big air bubbles and also to prevent the latest honey from being forced down to the bottom of the tank. Where a funnel with a long spout is used the last honey to enter the settling tank is forced to the bottom of the tank and it would not clear up the air bubbles until the entire tank had stood for hours to settle, and that would defeat our purpose.

When we have extracted a tankful of honey we start bottling directly from the settling tank. A word of caution here: one should first run off a 60-lb. can of honey in order to heat up the honey gate so the first honey to enter the bottles (jars) will be at least 140 degrees.

We start extracting in the morning and at the end of the day we have our honey bottled and ready for sale. The honey jars and pails are all labeled in advance during late winter or other spare time. We bottle the bulk of our bottling grade honey in August and September and this spring we were delivering to grocery stores, this same honey which is very clear and free from any



Equipment as described in the text.

granulation. The honey has only been heated once, and no extra work is needed to liquefy and reheat it. No trouble from fermentation and the only objection I can offer is the fact that it requires a lot of work to be done when this practice is followed, and one must be on the alert at all times when running a setup in this manner. I would say that a person who can operate a Brand melter and turn out honey which is not darkened or the flavor impaired in any way, can also operate this arrangement. One must keep everything moving at a steady pace and allow no part of the arrangement to become either too warm or too cold as either would cause a lot of damage.

We operate with bottle gas and commercial type burners, not because we thought it superior to a steam plant, but simply because we had some of this equipment, and to complete it we did not have to invest too much money. We can run a ton of honey through the clarifier and settling tank and put it into jars at a cost of about one dollar per ton. This same principle can be operated on a larger scale if desired. Our needs do not require more than a 20-frame extractor and the small Neises clarifier will handle the output nicely. I have seen a similar setup where a 50-frame extractor and the large clarifier is used and this also works very nicely when used with a larger settling tank to allow the proper time for permitting the foam to raise to the top.

With our smaller equipment we extract and bottle from 800 to 1200 pounds of honey in a day, depending upon how ambitious we feel. All the honey which we put into 60-lb. cans is also handled in the same manner and the honey which we put into 60's last fall is free from any granules and this makes it worth more on the market, as there is no liquefying necessary. This is put into the cans at 140 degrees and sealed while hot.

The only improvement which I can think of is an extra tank alongside the settling tank with a short connecting pipe with a shutoff valve at the bottom of the tanks, with the last tank rigged up with a vacuum pump to hasten the process of removing the tiny bubbles of air. Before another season we may try something along this line.

To run this setup properly, two people should be in the extracting room as there will be plenty of work for both when everything gets started moving. For the careless operator, a poor product will result, and if the honey is too warm or too cold, a poor product will result. By being careless and letting in too much cold honey one will have cases of jars which start to granulate and it would be quite a job to reprocess an entire crop when put up in glass and pails. Too much heat will destroy the flavor and darken the honey. A little experience will help the careful operator, but the one who is careless better continue to run his honey into 60-lb. cans and let it granulate.

Minnesota

New Brunswick Provincial Apiarist Meets Instant Death

Mr. Ersel F. Moore, New Brunswick Provincial Apiarist, met instant death in a car-train collision at Grand Bay, New Brunswick June 23, 1953.

Mr. Moore will be greatly missed, not only by New Brunswick beekeepers but throughout the three Maritime Provinces where he has made a reputation in his field. His ability, coupled with his sincerity and the genial warmth of his personality made him well-fitted for his task.

In recent years Mr. Moore prepared a course of lectures on apiculture which he gave at the New Brunswick School of Agriculture, Fredericton, New Brunswick. This course was an instant success and, in its published form, stands as a partial memorial to the ability and character of the man.

Mr. Moore is survived by his wife, the former Licentiate Josephine Kinley of Port Hilford, Nova Scotia, a son, Charles, a daughter, Elizabeth Josephine and five sons and a daughter by a former marriage, E. A. Moore, Shirley Moore and Hedley Moore, all of Fredericton; Philip Moore of Prince William, New Brunswick; Charles Moore of Toronto; and Craig Moore who is in the United States.

Localization to Small Areas Of Bees and Other Insects

Fruitgrowers in Holland with its 150,000 acres of orchards like to see bees achieving cross pollination. On the other hand seed growers strive to prevent cross pollination between closely related strains. The question arises "How far apart must seed crops be placed to prevent such cross pollination?" In experiments carried out to answer this question it has been found that bees have a high degree of fixation, that is, they tend to return again and again to the same area of operation. This fixation is not absolute but depends on the amount of water, nectar and pollen available. Honey bees, bumble bees and flies have about the same degree of fixation. Recent experiments with rows of leek plants indicate that a distance of 500 metres apart is not sufficient to prevent cross pollination. Further experiment along this line is contemplated.

(International Congress. Reported by Dr. J. N. Tennent, Scotland).

Dr. Minderhoud, Netherlands

Control of Ants, Termites And Spiders . . .

In February, 1952, R. E. Newell had an article on the control of ants and termites with a report of Chlordane used under the bottoms of the hives in the control of ants and termites. In that article he says, "It is a simple treatment requiring about a tablespoon of dust per treatment. A pound of dust will treat several hundred colonies. This dust will kill bees also so care should be taken when the hives are raised that the dust is sprinkled only inside the area covered by the bottom board. The area directly in front of the hive should not be treated."

For two successive seasons we have used this preparation in the same way and find that it is an effective control for ants, termites and spiders. In our own use, we use small amounts as recommended by Mr. Newell under the bottom board, also on tight covers under the hive cover itself.

The material which we received for trial was manufactured by the Niagara Chemical Division, of the Food Machinery and Chemical Corporation, Middleport, New York.

Carl Everest Killion, So Named . . .

Illinois' Chief Inspector, who has so often graced these pages, was named by his mother, Carl Everest Killion, the middle name for Mt. Everest, lately topped by Edmund Hillary and his companions. Suppose Mother wanted little Carl to rise also to the top. He has gone a long way and so, long may he climb.

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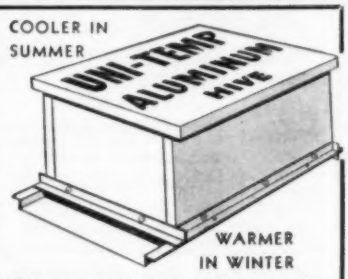

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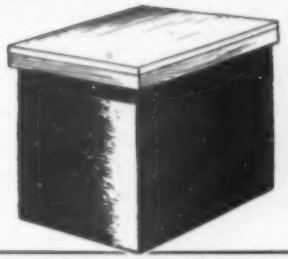

Bemis WINTER-WARM HIVE COVERS fit snugly over hives and guard against killing wind and cold. Double-weight, weatherproof, waterproof, durable. Put on or remove in seconds . . . no nailing or tacking.

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If your dealer doesn't have Bemis WINTER-WARM HIVE COVERS, write to

On Sunny Days . . . Users report that, while Bemis WINTER-WARM HIVE COVERS keep out cold winds, they admit and retain warmth on sunny Winter days so that the bees will take the exercise that keeps them in good health and activity.

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111 N. Fourth St., Box 47, St. Louis 2, Mo.

QUEENS "Italians" QUEENS
We offer you young laying queens, shipped prepaid Air Mail. Mark colonies with old and failing queens and replace when conditions are favorable. Queens available until November 1st. Clipped and painted at no extra cost.
1-9, 75c ea.; 10 up, 70c ea.; Tested Queens, $1.50 ea.
Quality Does Not Cost . . . It Pays
THE WILBANKS APIARIES Claxton, Ga.

ATTENTION MICHIGAN BEEKEEPERS
We Carry a Complete Line of
ROOT QUALITY BEE SUPPLIES
Chrysler's All Welded Excluders
60-lb. Cans — Large Handles and 3½-in. Openings
All Sizes Honey Containers
PRAIRIE VIEW HONEY CO.
12303—12th Detroit 6, Mich.

DADANT'S STARLINE HYBRID QUEENS
BRED IN ISOLATED YARDS

Reg. U.S. Pat. Off.

	1-24	25-99	100 up
Starline Queens	$1.20	$1.15	$1.00
Italian	.95	.85	.75

JOHN G. MILLER, 723 6th St., Corpus Christi, Texas

The MASTER
(formerly Macy)

Electric Uncapping Knife with Thermostat and exposed adjusting screw. Rubber cord. Crucible steel blade.
Price, $14.25
HUTCHISON MFG. CO.
2006 S. Sepulveda Blvd.
Los Angeles 25, Calif.

ARE YOU LOSING BEESWAX?
We render old combs, cappings, and slumgum for beekeepers. Our steam wax presses get every available ounce of wax out of this material. Send for terms.
DADANT & SONS, Inc. Hamilton, Illinois

JENSEN Says,-

Judicious use of top quality queens is a most important adherent to successful beekeeping. On the quality of your queens depends not only your honey crop, but also the life and worth of your colonies. Poorly laying queens, whatever the cause, are costly liabilities. Time is money these days, and you cannot afford to take chances on supersedures, or sudden disappearance of old worn out queens. Keep a few spares on hand for emergencies, either in nuclei, or a queen reservoir. It is good insurance; saves time, too.

"Magnolia State" Italian Queens, Time Tested. You'll like 'em.

Dadant's Improved Stock "Starline" Hybrid Queens Jensen Reared.

Reg. U.S. Pat. Off.

PRICES:

1-24	$1.25	1-24	$1.50
25-99	1.15	25-99	1.40
100-up	1.00	100-up	1.25

Clipped, and Marked Free on request only

Clipped and Marked Free as a Regular SERVICE

JENSEN'S APIARIES, Macon, Miss., U.S.A.

Where QUALITY and SERVICE Are Synonymous.

ATTENTION!

Foster Apiaries can make prompt shipment of

BLUE RIBBON ITALIAN PACKAGE BEES AND QUEENS

Competitive Prices

HOWARD FOSTER

Box 239 Colusa, Calif.

Sue Bee Says:

Now is the time to get your Bogenschutz Uncapper so you can set it up in readiness for your extracting season.

Manufacturer—

Ingelberg Huller Co.

831 W. Fayette, Syracuse, N. Y.

Midwest Distributor—

Sioux Honey Association, Supply Dept.

Box 1107, Sioux City, Iowa

The best assurance of a good season next year, is to have your colonies with a young and thrifty queen, either our Italian, Florida Flora Queens or Dadant Starline, give you this assurance. Queens all summer until October 1.

Reg. U.S. Pat. Off.

	Italians	Starline
1-24	85c	$1.35
25 & up	75c	1.25

FLORIDA BEE AND HONEY COMPANY

2649 Raeford Road Orlando, Florida

"GULF BREEZE" ITALIAN QUEENS

Prices: 1-24 ..... 80c each
25 up 75c each AIR MAILED.

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American Rabbit Journal

Shows the Way to Success

The leading Rabbit Farming Magazine. Explains the growing meat rabbit industry. Non-fancy. Est. 1931. 3 years $2.00; 1 year $1.00; Sample dime.

American Rabbit Journal

Dept. S. Warrenton, Missouri

CHOICE HONEY BEES AND QUEENS

Dadant's Starline Hybrids and our 3-Banded Italians

Shipments to October 15.

Quality, Service and Customer Satisfaction

Reg. U.S. Pat. Off.

WICHT APIARIES

406 Miller St. Hattiesburg, Miss.

DOVETAILING MACHINE

For making bee hives and supers. Special size for beekeeper's shop.

Details on request.

CARL E. JOHNSON CO.

1557 Gregory Avenue
Lincoln Park, Michigan

HARPER'S FAMOUS QUEENS

by air mail

75c each

10 or more 65c each

CARLUS T. HARPER

New Brockton, Ala.

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All The Best and Latest Garden and Farm Books, Bulletins

A wealth of up-to-the-minute expert advice on how to do wonders on a little land or a thousand acres . . . wonders with flowers, vegetables, fruits, landscaping, poultry, livestock, woodlands, fishponds, composting, soil improvement, etc. Just send name and address for this fascinating FREE catalog by return mail.

Country Bookstore, Box 5452, Noroton, Conn. (Est. 1943)

ITALIAN BEES AND QUEENS

E. J. Bordelon Apiaries

Box 33, Moreauville, La.
Telephone 2415, Moreauville

BEE WORLD

Including

APICULTURAL ABSTRACTS

International scientific journal published monthly by the Bee Research Association and edited by Dr. Eva Crane.

Subscription $3 a yr. Sample copy 10c. Apicultural Abstracts separately $1.75 a year.

AMERICAN BEE JOURNAL

HAMILTON, ILLINOIS

Agents for U. S. A. and Canada

QUEENS

KELLEY—"The Bee Man"

KELLEY ISLAND stock queens grown on our own bee farm and rushed out daily from Clarkson by air mail. We now have thousands of extra queens so try us on your rush orders.

1-24 ..... 75c each prepaid air mail
25 and up .. 65c each prepaid air mail

WALTER T. KELLEY CO.
Clarkson, Kentucky

Get Ahead with HYBRID BEES

We produce the only 4-way Island Hybrid queens commercially in the U. S. By contract the equipment from Kelleys Island has been moved to Georgia and we are pleased to be the producer and distributor of this bee.

Check your queen needs as soon as possible and place your order for immediate or future delivery. Your early order will help us to make delivery on time.

Queen Prices after June 1st.

	Island Hybrids	Rossman Stock
1 to 25	$1.25 ea.	$1.00 ea.
26 or more ..	1.15 ea.	.90 ea.

"They Produce"

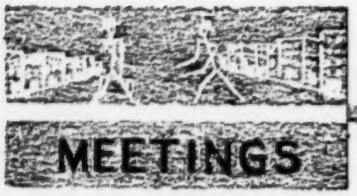
ROSSMAN APIARIES
P. O. Box 133 Moultrie, Ga.

We Are Saving You a Fall Price List So You Can Save Too!

When you get your copy of our fall price list you will see what we mean. It offers you such a multitude of things you need. Glass jars, honey servers, tin cans, cartons, wrappers, hive covers for winter, extractors, tanks, melters, uncapping knives, steam generators, acid boards, fumigator. QUANTITY DISCOUNTS ON ALL CONTAINERS.

Send for a copy of the FALL PRICE LIST.

DADANT & SONS, Inc. Hamilton, Ill. - - - Paris, Texas



Pennsylvania
49th Annual Beekeepers Picnic and Field Day
August 22

The Pennsylvania State Beekeepers Association will hold its annual picnic and field day at the Kis-Lyn Industrial School for Boys near Hazleton, Penn. The following program will be enjoyed by all beekeepers and their families:

Registration—9:30 to 10:00 A.M.

Meeting called to order by president, Paul S. Ziegler.

Welcome—Clarence E. Horton.

Group Singing led by Mrs. Orpha Ziegler.

Greetings from Luzerne County Agent, J. D. Hutchinson.

Report of Inspection for 1953—H. B. Kirk, Senior Entomologist.

Marketing Honey—W. W. Clarke, Jr., Extension Apiarist, State College.

Recent Developments in Research at the College—Edwin J. Anderson.

Report of the Anniversary Committee.

Greetings from Visiting Beekeepers and Supply Company Representatives.

Basket Lunch—12 noon. (Light refreshments will be served by the Luzerne County Beekeepers Association.)

Games and contests will be in charge of Prof. Edwin J. Anderson. Prizes will be awarded to the winners which are donations from supply companies and dealers. Don't forget to bring your smoker for the contest—women are also included. Come for a day of good fellowship and fun. Bring the family—a program will be provided for the children. Pennsylvania Beekeeper

Dr. Morgenthaler at Pa. Short Course . . .

Dr. Otto Morgenthaler, of Switzerland, who is a leading scientist in the field of apiculture in Europe, is planning to be at Pennsylvania State College as a guest speaker during the Beekeeping Short Course held during the week of August 24 to 28. Dr. Morgenthaler is now retired and visiting with his son in New Jersey.

North Carolina Beekeepers
Summer Meetings

The North Carolina State Beekeepers' Association is combining business with a delightful vacation in the cool, beautiful mountains of Western North Carolina. A meeting will be held at Boone, N. C. on Friday and Saturday, August 14 and 15. During this time the beekeepers will have an opportunity to see the historic drama "Horn in the West." Over the weekend visitors will travel the scenic Blue Ridge Parkway to Cullowhee for a second meeting on Monday and Tuesday, August 17 and 18. The beekeepers will have an opportunity of visiting the Cherokee Indian Reservation and seeing "Unto These Hills."

In addition to authoritative speakers, visits to local apiaries, and so forth, outdoor contests will be held. Special programs are being planned for the ladies including trips to nearby Arts and Handicrafts Centers.

Dormitory rooms will be available at both meeting places at about 1 dollar per day per person. Meals will be served cafeteria style at nominal cost. Let's take the entire family on a fine but economical vacation. Please let the secretary know the dates and number of rooms you desire by August 10. Bring bed linens for Boone meeting. These will be furnished with room at Cullowhee.

Eugene B. Finch, Sec.-Treas.,
N. C. State Beekeepers' Assoc.,
1618 Hillsboro St., Raleigh, N. C.

Summer Beekeeping Program
University of Mass.
August 22

The annual beekeeping program at the University of Massachusetts will feature Dr. Eva Crane, the noted Director of the Bee Research Association and Editor of the Bee World. In addition, other prominent beekeeping specialists who have not appeared recently before a Massachusetts audience will complete the program.

F. R. Shaw, Univ. of Mass.

Western Missouri Beekeepers Assoc.
Kansas City, August 9

The Western Missouri Beekeepers Assoc. will hold their annual picnic at Swope Park, Kansas City, Mo. (shelter house No. 7) on Sunday, August 9, beginning at 12:30 P. M. Fifty dollars in prizes from eleven states will be given away. An autographed, original drawing of Ed Dodd, creator of "Mark Trail" will be auctioned to the highest bidder.

Mrs. Robert Cornforth, Sec'y

National Honey Show
London, England, October 15-17

England's National Honey Show will be held this year from October 15 to 17 at the Royal Horticultural Society's Hall, Vincent Square, London, S. W. 1. It is to be opened on the 15th of October by the Rt. Hon. The Lord Mayor of London, with other civic dignitaries in attendance. There will be classes open to the whole world, and others available to the British Empire and Commonwealth. Schedules and entry forms may be obtained from the Chairman, W. E. Hamlin, 3 St. Mark's Place, Winbledon, S. W. 19, London.

Cook Du Page Beekeepers Assoc.
August 16, 1953

Marketing Honey and Honey Products will be the big topic of the day by a well known authority in this field in the person of Mr. Arthur Kehl, Sales Manager, Consumer Products Division of G. B. Lewis Company, Watertown, Wisconsin.

The meeting will start at 1 P. M. sharp at the apiary of A. J. Smith, 5835 West 127th Street, Worth, Illinois.

A. J. Smith, Sec.

Westchester County Beekeepers Assoc.
Port Chester, N. Y., August 16

The Westchester County Beekeepers Association will meet at 2:30 P. M. Sunday August 16, at the home of Mr. and Mrs. Alfred F. Roth, 146 Oak Street, Port Chester. A good speaker is expected. Come and see Mr. Roth's home apiary. At the last meeting J. H. Joyce, New York state bee inspector from Poughkeepsie

gave us an enlightening talk and a collection of honey pots was displayed by Carlton E. Slater. All interested in bees are invited to come and spend a pleasant afternoon.

Carlton E. Slater, Publicity

Annual Meeting
American Bee Breeders Assoc.
and
Southern States Beekeepers Federation
Atlanta, Ga., November 2-3

You make your plans to attend—we are making our plans for this to be the best meeting held for these associations! Meeting place and time will be: Atlanta Biltmore Hotel, Monday and Tuesday, November 2 and 3, 1953, Atlanta, Georgia.

We are formulating plans and will have outstanding speakers from all over the United States. Include the wife in your plans also, for we are making plans for her entertainment and pleasure. In addition to the program on the above days, we will enjoy a real Southern Barbecue. Other details of the program will be given later.

Do plan to attend this meeting—you owe it to your wife—your bees—and yourself!

W. B. Crawford, Jr., Pres.
North Ga. Beekeepers Assoc.

Middlesex County Beekeepers Assoc.
Groton, Mass., August 29

Middlesex County Beekeepers Association will hold its next regular meeting at the home and apiaries of member James Delorey in Groton, Mass., on August 29, 1953, starting at 2 P.M. There will be swimming and boating for those who do not wish to inspect the hives and all will have a chance to see the four-sided glass observation hive which Mr. Delorey has built. Beekeepers in the vicinity are invited to attend and bring a picnic lunch and stay until dusk.

John H. Furber, Sec'y

Summer Meeting
Vermont Beekeepers Assoc.
Brandon, August 22

The annual summer meeting of the Vermont Beekeepers Association will be held at the home of Leland Parmalee in Brandon, Vermont on Saturday, August 22, 1953. The business meeting will start at 10 A.M. Bring your lunch for the picnic at noon. Experienced beekeepers will address the meeting during the afternoon. Bring some of your choice honey for the exhibit and to compete for the prizes. All beekeepers and friends of beekeepers are cordially invited.

Clyde N. Wood, Sec'y

Empire State Honey Producers
Rochester, N. Y., August 14

The summer meeting of the Empire State Honey Producers Association will be held at Genesee Valley Park, Rochester, on Saturday, August 14. Dr. Eva Crane of England will be present to speak on "Beekeeping and Bee Research; the World Picture Today." There will be a selection by contest of a Honey Queen to reign at the New York State Fair. A report will be given on the New York State Honey Promotional Campaign, now in progress. There will also be comments on honey prices and crop and market conditions. All New York state honey producers are urged to attend and out-of-state beekeepers are cordially invited.

Mrs. M. R. Cary, Sec'y

Beekeepers' Short Course
Clemson College
Clemson, S. C.
August 19-20
S. E. Evans, Presiding

Wednesday Morning

8:30-9:00—Registration, J. F. Switzer; 9:00-9:10—Welcome, D. W. Watkins; 9:10-9:25—The Purpose of Beekeeping Associations, L. H. Little; 9:25-9:40—Planning the Honey Exhibit, L. J. Jordan; 9:40-10:00—New Ways of Swarm Control, G. H. Cale; 10:00-10:20—Topic to be chosen, M. J. Deyell; 10:20-10:30—Recess; 10:30-10:45—Topic to be chosen, Walter T. Kelley; 10:45-11:00—Questions and Answers; 11:00-12:00—Honey Judging and Processing Demonstrations, David Dunavan.

Wednesday Afternoon

2:00—Assemble at the College Apiary (Junction Highways 76 and 123), Queen rearing demonstration, Demonstration on uniting bees, Demonstration on moving bees, Tour of ladino and lespedeza pollination plots—Clemson College staff.

Thursday Morning

9:00-9:15 — Beekeeping News, George Vest; 9:15-10:00—Beekeeping Quiz, W. H. Purser; 10:00-10:15—Ladino clover pollination, David Dunavan; 10:15-10:45 — Assembling equipment, Clemson staff; 10:45-11:00—Beekeeping in S. C., W. C. Johnson; 11:00-12:00—Business.

Speakers

G. H. Cale, Editor "American Bee Journal," Hamilton, Illinois; M. J. Deyell, Editor "Gleanings in Bee Culture," Medina, Ohio; David Dunavan, Assoc. Professor Entomology, Clemson, S. C.; S. E. Evans, County Agent, Lexington, S. C.; W. C. Johnson, Extension Entomologist and Beekeeping Specialist, Clemson, S. C.; L. J. Jordan, Beekeeper, Lancaster, S. C.; Walter T. Kelley, The Kelley Co., Clarkson, Kentucky; Leslie Little, State Apiarist, Nashville, Tennessee; W. H. Purser, Asst. Entomologist, Clemson, S. C.; J. F. Switzer, Beekeeper, Roebuck, S. C.; George Vest, Manager G. B. Lewis Co., Lynchburg, Va.; D. W. Watkins, Director, S. C. Extension Service, Clemson, S. C.

Tazewell County Beekeepers Ass'n.
Hamilton, Ill., August 2

The Tazewell Beekeepers Association will hold a short formal meeting on August 2 in Hamilton, since most members will attend the Tri-State meeting there. The September meeting will be held at the home of P. F. Bourscheidt in Mackinaw and the one in October at the farm of J. F. Strope in Pekin.

Joseph Jachman, Sec'y

National Honey Show
August 29-September 7

The American Beekeeping Federation and the Minnesota State Fair, St. Paul, sponsor a national honey show during these dates. This is a splendid chance for publicity for any beekeeper who wants to participate, for cash awards, silver trophies, national championship. This is the first show of the kind on a national scale. The activities and winners' names and so forth will receive national publicity all through the show. Exhibits must be delivered not later than 5 p. m., August 18, to the Fair Grounds. Exhibits cannot be removed before 10 p. m., September 1. If you are interested in this rare chance, write to Robert Banker, Secretary, American Beekeeping Federation, Cannon Falls, Minnesota.

Do You Know? . . .

April 4, Light frost this morning. Have been checking the late bloom of Tag Alder, a fine pollen source. A strong odor of hyacinths caught my attention. Followed up wind and found two acres of, what do you suppose, swarming with bees. I didn't know what wild blossom had that smell either, do you?

R. E. Johnson, Barre, Mass.

The Market Place . . .

BEES AND QUEENS

TWENTY YEARS OF SELECTION Jersey bred queens for larger crops. Available June 1st. $1.00 each. Milton H. Stricker, R. D., Annandale, N. J.

CAUCASIAN QUEENS VERY GENTLE—Select untested, 1 to 25, $1.00 each; 25 up, 90c. Black River Apiaries, Currie, N. C.

THREE BANDED ITALIAN QUEENS—Good workers. Select untested, 1 to 25, $1.00 each; 25 up, 90c. Alamance Bee Co., Graham, N. C.

GOLDEN ITALIAN QUEENS—Very gentle. Select untested, 1 to 25, $1.00 each; 25 up, 90c. Carolina Bee Farm, Graham, N. C.

YANCEY HUSTLERS—Three-band Italians. They get the honey. Queens balance of season, $1.00; $10.00 dozen. Caney Valley Apiaries, Bay City, Texas.

CAUCASIANS—Personally raised, large queens, good workers, $1.00 each any number rest of season. Fred Brock, McDonald, Tenn.

LIGHT 3-BAND Italian queens—One to 20, 90c; 20 and up, 85c. Luther Pickett, Owner Orange Bee Co., Efland, N. C.

NORTHLAND ITALIAN QUEENS—For production. $1.00 each; 10 up, 90c. Shirl Baker, Rodney, Michigan.

HONEYLINE QUEENS—Large beautiful Italians. $2 each. Stephens Apiaries, Wingate, Indiana.

YELLOW ITALIAN bees and queens. Real producers. Health certificate, satisfaction guaranteed. 3-lbs. with queen, $4.50. Queens, airmail postpaid, $1.00; 20 to 50, 90c; 50 to 100, 85c. O. E. Brown, Rt. 1, Asheboro, North Carolina.

FOR SALE

FOR SALE—New electro-flo filling machines. Model SA100—$365.00. Model SA200—$285.00. F.o.b. Hancock Honey House, Hancock, Iowa.

One hundred ten frame painted, 2 supers with each hive mostly filled with honey. State inspection in June, free of disease, ten dollars each. John Stabler, Mecca, Ind.

FOR SALE—800 Colonies of bees and equipment, large new extracting house, stainless steel extracting equipment. Located in good irrigated valley in western Montana. Write for further particulars. W. R. Hettrick, 153 Daly Ave., Hamilton, Montana.

Used 30 Frame Extractor, Pump and Motor complete with tanks. 4-Frame Automatic Extractor and tanks. Ask for special price on Electric knives. The Hubbard Apiaries, Mfgs. Bee Supplies & Comb Foundation, Onsted, Michigan.

FOR SALE—One of oldest package bee and queen outfits in Alabama. A going concern with good reputation. Health and age reason for selling. Box C. A., American Bee Journal.

FOR SALE—Due to poor health will sell package and queen outfit, good early location, 750 10-fr. 2-story colonies, 650 double nuclei. Will sell colonies separate. Good location at Lucedale, Miss. Walter Orange and Son, Ruthton, Minn.

500 colonies Caucasian bees—3 story—$16. Good established income from queens, package bees, pollination service and extracted honey. Troy H. Nance, 3764 Jeffrey Ave., Sacramento, Calif.

FOR SALE—Hundreds of extra good, once used, 5-gal. honey cans. Wright Apiaries, Edgerton, Missouri.

Copy for this department must reach us not later than the tenth of each month preceding date of issue. If intended for classified department it should be so stated when advertisement is sent.

Rate of Classified advertising—13 cents for each word, letter, figure or initial, including the name and address. Minimum ad, ten words.

As a measure of precaution to our readers we require reference of all new advertisers. To save time, please send the name of your bank and other references with your copy.

Advertisers offering used equipment or bees on comb must guarantee them free from disease or certificate of inspection from authorized inspector. The conditions should be stated to insure that buyer is fully informed.

HONEY and BEESWAX WANTED

WANTED to buy new crop honey in all grades. Highest cash prices. Submit samples. Schultz Honey Farms, Ripon, Wisconsin.

Cash paid for light colored honey. Write Paul Oblack, Loyal, Wis.

We need finest quality clover comb honey in 4¼ sections. Advise quantity and price asked. R. W. Barnes & Sons, Oakland, Nebr.

HONEY WANTED, in 60's, all grades. Send samples, advise quantity and best price. A. I. Root Co. of Syracuse, 1112-14 East Erie Blvd., Syracuse 3, N. Y.

WANTED—Thirty 60's white honey. Delivered. Jess Walrond, Shawnee, Kansas.

WANTED—Water white clover extracted honey. Send sample. Roy Baxley, Christopher, Illinois.

COMB AND EXTRACTED—Truck lot—white—needed immediately—Cash paid on receipt. Lose Brothers, 206 E. Jefferson St., Louisville 2, Ky.

WRITE FOR SHIPPING TAGS and current quotations on rendered beeswax. Any amount from one pound up bought. If you have 25 pounds or more, save 25% by letting us work it into foundation for you. Walter T. Kelley Co., Clarkson, Kentucky.

CASH PAID for white and amber extracted honey. Send samples and state quantity available. Prairie View Honey Co., 12303 Tweifth St., Detroit 6, Mich.

HONEY WANTED—All grades and varieties. Highest cash prices paid. Mail samples. State quantity. HAMILTON & COMPANY, 2613 South Yates Ave., Los Angeles 22, Calif.

WANTED — Water white clover honey, truck or car lots; also light amber. Mail sample and lowest cash price. Write Stoller Honey Farms, Latty, Ohio.

WANTED—Extra white and light amber honey. Let us ship you the containers. Sell us your honey for CASH on delivery. The Hubbard Apiaries, Manufacturers of Bee Supplies and Comb Foundation, Onsted, Michigan.

BEESWAX AND HONEY WANTED in trade for supplies or cash. Hodgson Bee Supplies Ltd., 565—13th Ave., New Westminster, B. C., Canada.

WANTED — Extracted honey, white or light amber, in 60's. State price in first letter. Ed. Heldt, 1004 W. Washington St., Bloomington, Illinois.

CARLOADS or less of honey and wax. Send sample and price. Alexander Co., 819 Reynolds, Toledo, Ohio.

HONEY FOR SALE

ANY GRADE — any amount. Alexander Company, 819 Reynolds, Toledo, Ohio.

GOOD QUALITY comb and extracted honey for sale. Smith Apiaries, Clayville, New York.

CLOVER EXTRACTED HONEY in sixties. Ralph Gamber, 910 State, Lancaster, Pennsylvania.

Professor Luerssen's Honey—80 cans fall honey for sale, good quality, priced right. My superior white clover honey, new cans, ready soon. 1301 E. Washington, Bloomington, Ill.

SUPPLIES

WRITE FOR CATALOGUE. Quality bee supplies at factory prices. Prompt shipment. Satisfaction guaranteed. The Hubbard Apiaries, Manufacturers of Beekeepers' Supplies, Onsted, Michigan.

THE BIGGEST BEE SUPPLY CATALOGUE PUBLISHED (64 pages) free for the asking. Big factory manufacturing a complete line of wooden goods, comb foundation, metal goods, veils and gloves, carloads in stock, daily shipments, save 20%. WALTER T. KELLEY CO., CLARKSON, KENTUCKY.

THE ONLY COMB FOUNDATION PLANT in the East. We sell foundation, work your wax, render combs and cappings. Robinson's Wax Works, Rt. No. 3, Auburn, New York.

BEE SUPPLIES—Tin packages, 10 sizes glass jars, paper shipping supplies, window cartons and other items. Roscoe F. Wixson, Dundee, N. Y.

SOUTHERN CALIFORNIA HEADQUARTERS for Bee Supplies. Make our facilities your "Trading Post." Complete stocks. See our Bulletin Board for Budget Bargains. The Diamond Match Company, 1300 Produce St., Los Angeles 21, Calif.

OVERSTOCKED on the finest quality beeway sections. Special quotations on lots of 10,000 and more, regular or split. Walter T. Kelley Co., Clarkson, Kentucky.

Electro Filling Machines, users and distributors. Write Stoller Honey Farms, Latty, Ohio.

POSITIONS AND HELP WANTED

HELP WANTED—Experienced man preferred. Good position for right party. Give references. Howard Weaver, Navasota, Texas.

SEEDS AND TREES

HONEY PLANTS—Seeds - trees - plants. Illustrated catalogue on request. Pellett Gardens, Atlantic, Iowa.

WANTED

Wish to purchase honey producing outfit. Prefer Midwest. Equipment without bees considered. Box 71, c/o American Bee Journal.

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KNOW interesting facts concerning the bees of India through the INDIAN BEE JOURNAL, published in English, by the Bhupen Apiaries (Himalayas), Ramgarh, Dist. Nainital, U.P., India, and obtainable from them. Subs. Rs. 7/-or 10 Shillings or $2.25 per annum. Single copy Rs. ¼-s. 1/9 or 49 cents (international money order). Payment in mint postage stamps of your country accepted.

RANCH MAGAZINE—Do you find it difficult to secure information about sheep and sheep ranching methods? The SHEEP AND GOAT RAISER reaches more sheepmen with more information of range sheep than any magazine published. Subscription $1.00. Hotel Cactus, San Angelo, Texas.

SECTION COMB HONEY production procedure steps—50c. Glossary of Beekeeping Terms—50c. United Industries, Dept. K, Box 449, Madison 1, Wis.

It Pays to Requeen

WITH HOLLOPETER'S Italian Queens, reared in the mountains of the North from stock full of vim, vigor, and vitality. Quality and service the best during fall honey flow.

PRICES—

1-9, $1.00 each; 10-24, 90c ea.; 25-49, 80c ea.; 50-99, 75c ea.; 100 up, 70c ea.

White Pine Bee Farms

Box 800 Rockton, Penna.

BEE HIVES

Top Quality
Fair Prices
Prompt Shipment

Write for
Special Quantity Prices

Leahy Manufacturing Co.

Box X269 Higginsville, Mo.

QUEENS

Italian or Caucasian

This is your chance to get some of the best queens on the market at such a low price. Young mated and live arrival guaranteed. Clipped, marked and air mailed at your request.

PRICE—

Lots	
1-25	75c
25-50	65c
100 up	60c

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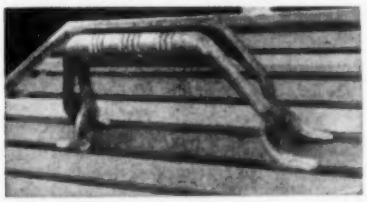

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This light modern tool is for easy handling and removal of frames from the bee hive. Orders promptly filled—Satisfaction guaranteed. **$3.00 plus 30c postage fee.**

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Improved designs, embodying color, balance, simplicity, and distinction. Please send for free samples & prices.

C. W. AEPPLER COMPANY
Oconomowoc, Wisconsin

YORK'S QUALITY BRED QUEENS

— Two Strains —

Queens Bred Up to a Quality — Not Down to a Price

Reg. U.S. Pat. Off.

YORK'S ITALIANS		DADANT'S STARLINE	
1-24	$1.00	1-24	$1.35
24-99	.90	24-99	1.25
100 up	.80	100 up	1.15

The Preference of Leading Honey Producers

YORK BEE COMPANY

JESUP, GEORGIA, U.S.A. — (The Universal Apiaries)

LET US TAKE CARE OF YOUR CONTAINER NEEDS

5% Discount on $ 50.00 Orders
10% Discount on $100.00 Orders

GLASS JARS

	Queenline	Economy	Sh. Wt.
5 lb. Jars, per reshipping carton of 6		$ .62	10 lbs.
2 lb. Jars, per reshipping carton of 12	$ .80	.68	11 lbs.
1 lb. Jars, per reshipping carton of 24	1.20	1.00	11 lbs.
½ lb. Jars, per reshipping carton of 24	.95	.92	9 lbs.
2½ lb. Sq. Jars for chunk honey, ctn. of 12		1.10	12 lbs.
Sample mailing bottle — 15c each		$1.20 per doz.	

TIN CONTAINERS — Friction Top Pails with Bails

	Price	Sh. Wt.
5 lb. — Per Carton of 50 — 13c each	$ 6.00	27 lbs.
5 lb. — Per Carton of 100 — 13c each	11.65	46 lbs.
10 lb. — Per Carton of 50 — 18c each	8.75	44 lbs.
60 lb. Square Cans, in bulk, each	.62	3 lbs.
60 lb. Square Cans, per carton of 24	14.80	72 lbs.

Cellophane Window Front Cartons — All Sizes
Per 100 — $2.35 Per 500 — $10.95 Per 1000 — $21.50

Decorated Cellophane Wrappers — All Sizes
Per 100 — $1.30 Per 500 — $6.30 Per 1000 — $12.55

AUGUST LOTZ COMPANY

Manufacturers & Jobbers — Bee Supplies

Boyd Wisconsin

THE RICH HONEY FARMS

JEANERETTE, LOUISIANA

ITALIAN PACKAGE BEES

Heavy with bees, no drones. Shipped by parcel post or express. For parcel post shipment add 75c per package for postage.

QUEENS

The finest money can buy. Your choice of two outstanding breeds. Painted, clipped or airmail at no extra cost.

Reg. U.S. Pat. Off.

Dadant's Starline Hybrids

Worth much more than the price we are asking. You have years of selective breeding and testing in the ancestry of this strain. Queens produced by Rich's efficient methods from Dadant's special hybrid stock. Gentle, prolific, and high performance similar to hybrid corn.

Rich's Leather Italian Stock

Gentle, uniform and good producers—will do their part in getting for you many supers of honey. Breeding stock selected for high production, non-swarming and gentleness. You will find them very profitable.

— PRICES —

	Queens		Packages		
	Starline Queens	Regular Italian	2-lb.	3-lb.	4-lb.
1-24	$1.50	$1.20	$3.50	$4.50	$5.50
25-99	1.40	1.10	3.25	4.25	5.25
100 up	1.30	1.00	3.00	4.00	5.00

When ordering packages with Starline queens add 25c per package.

by M. G. Dadant

In general, the 1953 crop of honey will be a disappointment after the heavy crop of 1952. There will be some exceptions to a generally shorter crop than in 1952. Georgia and Florida seem to have the equal of 1952. There is a good crop beginning in New Jersey and extending westward through Pennsylvania, Ohio, and into Indiana. Southern Alabama and Mississippi seem to have had good early crops. Some sections of the Missouri Valley also, particularly Nebraska and Montana and Idaho and particularly the northwest states, Washington and Oregon where the crop is probably 30 to 50 per cent above the good crop of last year.

In many of the ordinary heavy producing states the crop will range far below a year ago and this is particularly true of California where there is likely not over 50 per cent of last year's crop and perhaps less up to July 15.

Texas, likewise with a short crop last year, has been equally short this year and this applies as well to the states farther north and both east and west of the state of Texas.

In the Canadian provinces, British Columbia alone shows possibilities of a heavy crop. Other provinces, particularly the eastern provinces, are short.

All in all it looks like so far the crop compared to 1952 would not range much over 50 to 75 per cent. Likely the lower figure.

Prospects

Naturally with the copious rains generally the country over, the possibilities for the balance of the season seem quite satisfactory. One would assume that fall crop conditions are much better than they have been in the past three or four years and there might be a considerable quantity of amber honey to figure in the total for the 1953 year. However, in the New England States the crop is pretty well over for the year and this applies pretty well to the Southeast except in those sections where the aster is still to come.

Conditions have changed completely in Texas with copious rains falling there and it now looks like the late Hubam clover and cotton might make up for some of the deficiency caused by the earlier drought. This likely will apply to northern part of Louisiana, Arkansas and northern Mississippi which has been quite hurt by the drought, although the southern sections seem to have a satisfactory crop.

In the intermountain territory, conditions are late. It hardly seems possible that Colorado and Utah can come up to last year's quite satisfactory crop even with the most favorable conditions. Wyoming seems to be the exception, along with Montana, with conditions about normal.

In the extreme Northwest conditions are still favorable for a crop and the later crops in California may make up for some of the earlier disappointments. In other words, alfalfa and cotton and some of the native weeds are still to come and prospects look much improved although very dry, hot weather around the Los Angeles area has somewhat minimized the possibilities there.

In the Canadian Provinces, only the western provinces and particularly British Columbia seem to have any great possibilities.

All in all one would not assume that the complete total crop will range anywhere near last year and may drop 20 per cent from the totals of last year as issued by the government.

Offers

Naturally with not much of the honey yet off, the offers and sales are at a minimum. Some Florida honey has been offered and California honey has in some cases been purchased. Good orange white honey has brought as high as 15 cents and there is a tendency not to drop any below the new support price and in many instances to hold above it. We hear probably more suggestions in our mail and in the reports that the new support price on honey may govern the new price. We are inclined to think, however, that with the short crop there is going to be a tendency to hold above this support price and hold at least for the price equal to last year. It would be our recommendation not to sell on "scare sales" early, as there are many indications that there will be a good demand.

Old Crop Left

It is particularly significant that there is practically no 1952 honey left. This applies even in the hands of the packers and cooperatives who probably have as little or less than usual of old crop honey, and such as is in the hands of the producer is negligible.

One could well understand that it should not be a pressing matter to sell quickly unless remunerative prices were offered.

We mentioned in our previous letter that the export sales were to be supported by a price one cent less than last year. However, we have been corrected and the price is only ½ cent less than last year. We are greatly in hopes that producers will not be tempted to get rid of the bulk of their honey and perhaps unfortunately leave our own market unsupplied owing to the shorter crop.

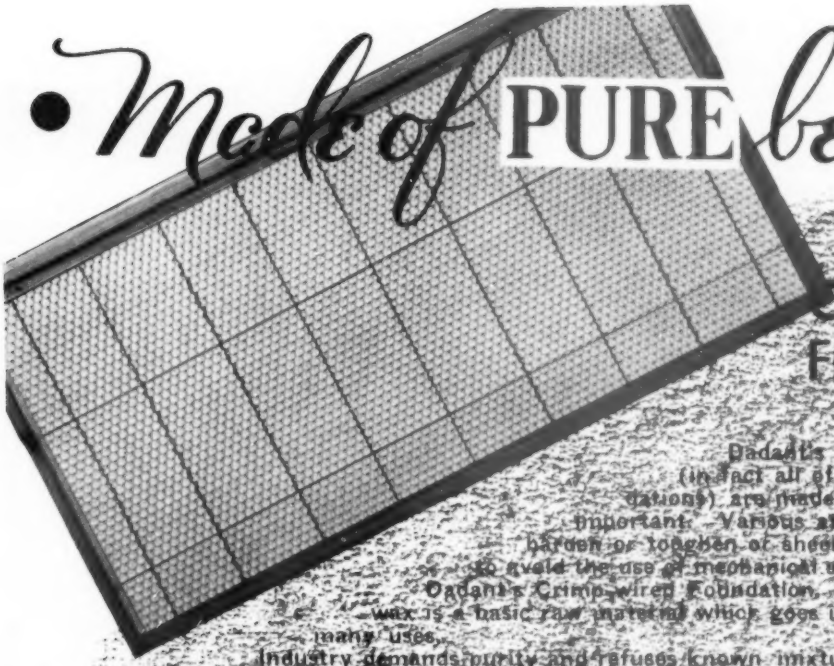
Naturally a fall crop throughout the whole country might change the situation but certainly could not bring totals up to anything like they were in 1952.

Honey Wanted— Cars and less than car. Top Prices.
C. W. Aeppler Co., Oconomowoc, Wis.

Institute Posters . . .

The new posters from American Honey Institute, "HONEY on Grapefruit Adds Extra Goodness", and "A Delicious Treat, Honey on Ice Cream" are beauties. Each one is eleven by seventeen inches, produced in colors, with very well chosen pictures. If you are interested, write American Honey Institute, Madison, Wisconsin.

• Made of PURE beeswax



DADANT'S CRIMP-WIRED FOUNDATION

Dadant's Crimp-wired Foundation (in fact all of Dadant's Bee Comb Foundations) are made of pure beeswax. This is important. Various attempts have been made to harden or toughen or sheer up pure beeswax in order to avoid the use of mechanical supports such as are used in Dadant's Crimp-wired Foundation. However, remember beeswax is a basic raw material which goes into many products and has many uses.

Industry demands purity and refuses known mixtures. Remember, too, that the beeswax in comb honey whether in section or in bulk is actually a food because it is a part of the honey. Therefore, any mixing of other waxes with it is absolutely an adulteration.

Keep your beeswax safe for food use — worth the highest price on any market.

The Choice Of Expert Beekeepers

In heat or cold the cells will hold

The crimped wire radiate shoulders of strength

Wires of special steel for greatest support

Accurate embedding so bees use every inch

Made only from pure beeswax

Refined for utmost cleanness

Brilliant, natural color

Accepted at once by the bees

Cell walls a guide to perfect comb

Milled to exact measures

All cells just alike

Every sheet the same

Carefully and rigidly inspected

Securely and safely wrapped

Gives You LIFETIME COMBS

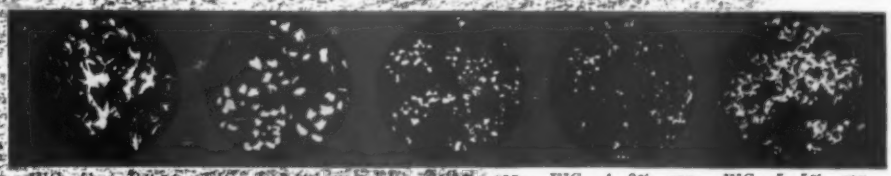


FIG. 1—Pure beeswax; fluffy flake, thin layer

FIG. 2—1% carnauba wax; large clear bright burrs

FIG. 3—3% carnauba wax; small-number burrs, tiny stars

FIG. 4—2% carnauba wax; large number burrs and stars

FIG. 5—5% carnauba wax; countless tiny brilliant crystals

COMPARATIVE MICROPHOTOS of Pure Beeswax and four stages of wax adulteration.

USED 32 YEARS -- STILL THE BEST

Since 1921 we have used over 10 tons of Dadant's Crimp-wired Foundation. Of the thousands of combs drawn from this foundation some have had to be replaced on account of damage and disease but no replacement has been necessary because of foundation failure.

I regard Dadant's Crimp-wired Foundation as the best for brood and extracting combs when cost and service are considered. We have found that combs built upon Dadant's Crimp-wired Foundation, in well-wired frames, stand up in high speed extractors and in the fast moving trucks of the migratory beekeeper.

Chas. S. Engle, Beeville, Texas.

1863 1953

Grandfather Charles Dadant, typically French, Founder of the firm of Dadant and Sons

Dadant & Sons, Inc.

Hamilton, Illinois — Paris, Texas

G. B. Lewis Co. Branches—Colonie & Montgomery Sts., Albany 1, N. Y.; 1117 Jefferson St., Lynchburg, Va.; 92 Riverside St., Chillicothe, Ohio

Dealers Everywhere

SINCE 1878 DADANT'S FOUNDATIONS HAVE BEEN THE CHOICE OF EXPERT BEEKEEPERS

UNIVERSITY MICROFILMS
313 NORTH FIRST STREET
ANN ARBOR MICHIGAN
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And Now a Good Carton Made Even Better

The Root Comb Honey Carton is made of snow-white sulphite board—a pure virgin pulp sheet that is white all the way through. The fact that it is odorless and tasteless makes it an ideal food container. You'll like its bright appearance!

Label Time is Here

Our 16-page catalog is full of many designs, styles, and colors to fit your label needs. It is free for the asking.

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MEDINA, OHIO